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AN
EPITOME
OF
LOGIC.

IN FOUR PARTS.

BY N. DRALLOC.

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*Quem mala stultitia, et quæcunque inscitia veri
Cæcum agit, insanum Chrysippi porticus et grex
Autumat.*

HOR.

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PREFACE.

THAT Logic was considered as a necessary and important branch of study in the ancient schools, is a truth too evident to be disputed; but by what means it has now fallen, in some degree, into neglect, is a matter which requires a little consideration to determine. In examining, however, some branches of learning of a large extent, we shall find, that adepts have been so prolific in prescribing rules for the

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learner, that they have either obscured the track to be pursued, or have directed the pupil into such a labyrinth of minute particulars, as to bewilder him. Logic is a subject of vast extent ; and in consequence of the many trifling distinctions with which it was crowded, the jargon which was introduced to render it subservient to general rules, and the opportunity it gave the sophist to conceal his fallacy, its utility was disputed, even during the prevalence of the stoic doctrine. We are told, that one of his companions requested Epictetus to convince him that logic was necessary: “ Would you have me demonstrate it to you?” said he, “ Yes.” “ Then I must use a demonstrative

“form of argument.” “Granted.”
“And how will you then know
“whether I argue sophistically or
“not?” On this the man being silent:
“You see,” said Epictetus, “that
“even by your own confession,
“logic is necessary, since, without
“its assistance, you could not learn
“so much as whether it be neces-
“sary or not.

It is, however, as unreasonable to neglect the useful parts of logic, because writers have almost obscured it by a profusion of mystical and elaborate arrangement, as to reject the cheering comforts of true religion, because the superstitious and enthusiastic have involved it in the clouds of what they call elucidation.

tion; and to discard logic, because it might assist the views of the sophistical, is as silly as to prohibit good bills of exchange, because they may give occasion to forgery and to fraud.

The logical writers of the present century have been furnished with an advantage of which the ancients were totally ignorant; I mean the admirable theory of Mr. Locke; a theory, to overturn which, inferior genius has nibbled, to its own discomfiture. It might be demanded — What advantage did that theory offer?—I answer, that, beside the important system it established, it was easy then to discover, that there ought to be a clear

distinction between a treatise, which describes to men of erudition and of science, the foundation and operations of the human understanding, drawn from an accurate observation of its conduct, and a work, which should introduce the tender mind of a learner to an acquaintance with itself, and teach it to arrange and manage the materials of which it is possessed, with order, perspicuity, and effect. Without a previous knowledge of some of the principal rules of logic, it is difficult to understand many passages in Mr. Locke's Essay; a treatise on logic, therefore, ought to be to an ample acquaintance with the powers of the human understanding, what the rules of

grammar should be to the knowledge of a language; that is, it should consist of a few concise rules, necessary to be known by way of introduction. Has this been the modern practice? I conceive not: Instead of forming from the voluminous mass of ancient and modern materials, an introductory compendium, several modern writers have nearly filled large treatises in attempting to describe how the mind conducts itself under particular circumstances; and one of the latest has taken no small pains to *convince* his readers, that a clock, and a watch, though machines of motion, *do not think*. Many have built up plausible theories, which cannot be reduced to practice; and the best

English writer on logic, has dedicated many pages to a review of the ancient practice of the schools; principally, indeed, for the purpose of exposing scholastic absurdity. In short, I conceive they have all, in a great measure, retarded the progress of that which they professed to promote, by doing too much.

There is enough, perhaps, in the worst treatise on logic, which has been published in the English language, to have done much good, and many of them contain most of the rules to be found in the following epitome; but they are usually so distended by animadversions on the understanding, some superfluous advice to direct

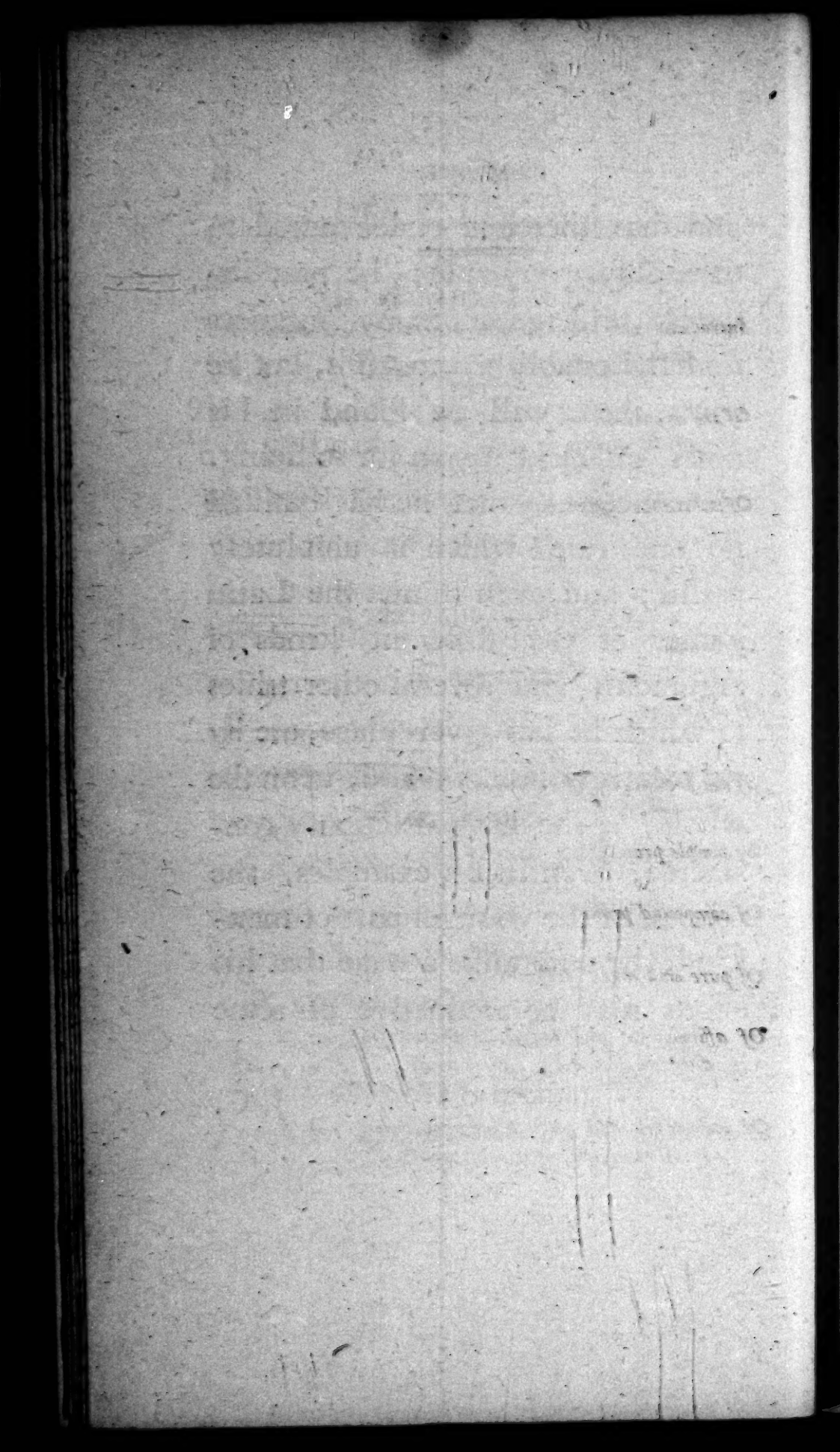
the judgment, or unnecessary proof, that the connexion is not easily discoverable, and the progress is rendered tedious in the extreme.

Believing that the essential parts of Logic may be easily understood, when divested of every unnecessary embarrassment; that a knowledge of them would be greatly advantageous to every rational creature; and above all, to youths who may be destined to pursue the higher classes of study, the writer of the following little treatise has attempted to disengage them from a part of their encumbrances:—how far he has succeeded, the public will determine.

He considers that Logic can never be taught but by examples,

and has therefore endeavoured to exemplify every rule; he has, indeed, differed in many instances from the established maxims, but he trusts, there will be found in his notes, sufficient reason for so doing. He conceives, that he has omitted no one rule which is absolutely useful; and even thinks the Latin names of the different kinds of argument, and several other trifles to which he has given place, are by no means necessary; and, upon the whole, as he has particularly considered, even in his examples, the interest of the younger part of mankind, he entertains a hope that his efforts may be productive of some good.

J. C.



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AN
EPITOME OF LOGIC.

PART THE FIRST.

CHAPTER I.

INTRODUCES THE SUBJECT, AND TREATS OF THE
SEVERAL KINDS OF IDEAS.

LOGIC, a word of Greek origin, is used to signify that art which teaches men to arrange their mental faculties in such order, as will greatly assist them in distinguishing truth from falshood, and enable them to communicate their ideas with ease, order, and perspicuity.

The extent of this subject, in its most general sense, is vast in the extreme, since it is employed about all things, and all ideas of things, the mind is capable of

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taking cognizance of, together with their modes, their relations, and their predicaments: but, as this essay is rather intended to epitomize and simplify this immensurable subject, to reduce its most useful maxims into so small a compass as to render them of advantage to those who cannot submit to the severe and intense application necessary to a thorough acquaintance with all its minutiae, I shall first begin with

IDEAS.

These are of two kinds; the first called *ideas of sensation*, because they are received through the medium of one or more of the senses. Ideas of sensation are no other than the pictures, or images, which remain on the tablet of the understanding, even after the things which excited them are removed. Thus, *coldness, whiteness, sour, scent, sound*, and all other things which can be presented to our senses, after we have once

felt, seen, tasted, or heard them, though they be instantly removed from us, the effect which their presence excited still remains with us, and the representations, or remembrances thus remaining in the mind, which we are able to turn in our thoughts, and contemplate at our will, are called ideas of sensation.

The second class, called *ideas of reflection*, are generated in the mind by contemplating, compounding, or comparing the ideas we have obtained by sensation, with one another. As when we recollect to have been revolving, or examining one or more ideas, we find that this operation produces a new idea called *thinking*, and the very discovery of this new idea presents to the mind another called *perception*. If, after comparing two or more ideas, we cannot obtain the complete satisfaction we expected, the uncertainty in which the mind remains introduces the idea of *doubt*; but if the result of the enquiry amounts to

AN EPITOME

something which approaches towards certainty, it terminates in the idea of *belief*. Of this class are said to be *knowing, willing, reasoning, relation, &c.* Now all our ideas must be either of the one, or of the other of these two classes.

IDEAS ARE EITHER SIMPLE OR COMPLEX.

Simple ideas, whether of sensation or reflection, present but one uniform, indivisible character to the mind, which will not admit of plurality, nor can they be perceived to contain two different natures, not even by the mind itself, as all those before mentioned. All simple ideas of sensation, the mind passively receives from external objects, and all simple ideas of reflection, from its own operations. Of these two kinds of simple materials is composed the whole fabric of human knowledge.

Though the mind cannot alter one simple idea, and passively receives most of

them by sensation, yet it connects two or more simple ideas, of the same kind, or of various kinds, together, and so firmly unites them under one name, as to be able to manage them as tractably for its own accommodation, and for the purpose of informing others, as though they were perfectly one simple idea, and had not been made up of several parts.

Thus the mind being possessed of the simple idea of *unity*, or *one*, adds another unit to it, and then another, when having combined them under the term *three*, it finds that compilation so united, as easily managed as a simple unit, or one: then by adding three more, it joins the two combinations under the term *six*; and by placing thereto another three, forms the composition, collected and united under the term *nine*; and so with all the various combinations of numbers.

All these mental unions are called *complex ideas*,* which the mind arbitrarily composes at its will. It also unites simple ideas of various kinds, as the simple idea *one* being joined to the simple idea *will*, or *volition*, forms the combination

* The celebrated John Horne Tooke, to whom the world is much indebted for many valuable hints in his book, entitled *ENEA PITPOENTA*, says, page 49, 50, "I think, had Mr. Locke sooner
 "been aware of the inseparable connection between
 "words and knowledge, he would not have talked of
 "the *composition* of *ideas*; but would have seen that
 "it was only a contrivance of language: and the
 "only composition was in the *terms*; and consequently that it was as improper to speak of a
 "*complex idea*, as it would be to call a constellation
 "a *complex star*."

We shall, however, the better to be understood, apply the complexity either to the term, or the ideas, as the occasion may invite; and this is the more necessary, as there are many simple ideas without names.

unanimity; * and this is called a complex idea of reflection.

Besides the infinite number of complex ideas, or combinations of simple ideas, united like parcels, containing a variety of goods, the readier to be reviewed in the warehouse of the understanding, and the easier to be conveyed to others under one single denomination, to avoid the trouble and difficulty of enumerating the parti-

* Here the composition is evidently in the term also, and it might be said, that the complex term *unanimity*, comprizes more than the simple ideas *unity* and *volition*, as implying several persons whose agreement the complex term *unanimity* denotes; but let it be remembered, that this arises from a relation to the object which the word signifies, and is not a part of the combination itself. Let those, however, who believe that a better example might be found, make the attempt, and perhaps they will discover, that it is not so easy a matter to find a moral or intellectual combination, wherein all the simple parts can be distinctly enumerated.

cular articles each parcel contains.—Besides these, I say, most external objects produced both by nature and by art, contain similar collections of simple appearances, which the mind passively takes cognizance of, e. g. A number of these simple ideas are united in an orange, and though existing in one subject, so distinct are they, and diverse from each other, that they reach the sensorium, or seat of the soul, through different avenues.* The colour, which is completely distinct from the taste, makes its way through the eye, the taste, through the palate, the smell, through the olfactory organs, the density by means of the touch, &c. Now these four distinct ideas, than which no objects can more widely differ

* The word *avenue* in this place, and many other words used in this work, may not be strictly applicable; yet, it is hoped, they will escape the severity of criticism, as they may be better calculated to convey the meaning, than any other terms, probably, that could have been selected.

from each other, are all, with many others, resident in one subject, namely, an orange. Thus it appears, that these different ideas* united in an orange, form a natural combination similar to one of those artificial compositions formed by the mind for its own accommodation. The idea of an orange is, therefore, a *complex idea of sensation*.

Of this class are a house, a man, a town, a ship, and all other objects of sensation, which present two or more distinct ideas to the mind, united in one subject. It may be necessary also to observe, that these four perceptions combined in an orange, could never be introduced to the notice of

* Let it here be observed, that to signify ideas themselves, and the objects whose effect upon our senses excite them by one common name, is confessedly absurd, and has given great occasion of cavil; but from the very nature of language it is hardly possible to avoid it. The reader will, however, find a nominal distinction preserved, wherever it is tolerably convenient.

the soul, but through the medium of the respective organs fitted for their introduction;* for if either of these organs were wanting, all the remaining senses united could never have informed the mind of that idea so shut out. Thus, if a man were born blind, his organs of tasting, feeling, smelling, &c. never could have informed him of the colour of an orange, and

* Mr. Locke, page 83 and 84, vol. I. says,
“ I think it is *not possible* for any one to imagine
“ any other *qualities* in bodies, howsoever constituted, whereby they can be taken notice of,
“ besides sounds, tastes, smells, visible and tangible qualities.—And he that will not set himself proudly at the top of all things, but will
“ consider the immensity of this fabric, and the
“ great variety that is to be found in this little
“ and inconsiderable part of it, which he has to
“ do with, may be apt to think, that in other
“ mansions of it, there may be other, and different
“ intelligent beings, of whose faculties he has as
“ little knowledge or apprehension, as a worm
“ shut up in one drawer of a cabinet, hath of the
“ senses or understanding of a man.”

could he neither smell, taste, &c. his sight could give him no idea of its flavour, &c.*

Having briefly shewn that a simple idea of sensation is an indivisible image in the mind of something which exists without; that a simple idea of reflection is an indivisible representation of some action of the mind within itself; that a complex idea of sensation is a picture in the mind of an external subject in which many simple ideas are combined; that a complex idea of reflection is an assemblage of simple ideas united under one name by the mind itself; let us now take a view of the mind, employed in the economy and formation of its factitious ideas.

* Those who wish to acquaint themselves with further divisions of ideas, will find them in Mr. Locke's Essay on the Human Understanding, divided into *clear, obscure, confused, fantastical, adequate, inadequate, true, false, &c.*

CHAPTER II.

[OF THE OPERATIONS OF THE MIND, IN THE
FORMATION OF ITS IDEAS.

I. OF ABSTRACTION.

IT is the contemplating of one or more ideas alone which cannot exist apart, or be divided from their subject, which is called abstraction. Thus when we consider the yellow colour of an orange only, dropping, or disregarding the taste, the smell, the density, time, place, circumstance, &c. we perform that operation of the mind called abstraction, and the idea of the colour alone so considered, is called an abstract idea.

II. OF GENERALIZATION.

The moment we begin to enlarge the idea of that particular yellow colour perceived in an orange, by extending it to the colour seen in a lemon, a pine-apple, brass,

gold, or any other substance in which that colour might be perceived, so as not to consider it as a particular and distinct colour in each individual object, but as one colour, though perceived to be resident, with some little difference, (which the mind does not notice) in a variety of subjects; the moment, I say, we so enlarge it, we perform that operation of the mind, called generalization; and the idea so abstracted, and enlarged, is called an abstract general idea.

Again, having abstracted the idea of body from all particular masses of matter, throwing aside, or disregarding its colour, figure, size, time, place, relation, &c. the mind views it as a naked abstract general idea; abstract, because it is considered by the mind stripped of all mode and figure, without which it cannot physically exist; and general, because, in this naked solitude of abstraction, it comprehends, and is equally applicable to all bodies, animate

or inanimate, and exhibits no difference between a man, a stone, a house, a clock, or the whole orb itself; and this is one of the most general abstract ideas the mind is capable of forming. The idea of life, also abstracted from body, and enlarged, so as to comprise that principle in all animated beings, is another of our most general abstract ideas.

III. OF COMPOSITION.

Now these two abstract general ideas, namely, *body* and *life*, being joined together by the mind, they lose their respective names, and form a complex abstract general idea, under the name *animal*; complex, because it is made up of a plurality of ideas; abstract, because it takes away, for its own consideration, life and body from all the other qualities necessary to the distinction of every living creature; and general, because it includes all living beings, without noticing any difference between them.

To these may be added, either the *idea* of *terrestrial*, *aquatic*, *volatile*, or *amphibious*, and thus would be composed the *complex abstract general idea* of one of those ranks of beings.

Something like this might be attempted to compose moral and intellectual associations of ideas; as faith, hope, charity, compassion, gratitude, &c. may be said to compose *virtue*, but unfortunately, we are so little acquainted with the component parts of such combinations, that it is hardly possible ever to effect it with any tolerable certainty.*

* As the names by which mental compositions, or associations of ideas are denoted, do not now, (whatever might have been the practice in the primitive stages of language) contain a catalogue of the contents of each parcel, or association, it is impossible to effect, in most instances, an analysis, i. e. to separate and arrange the simple materials composing each combination, or, according to the idea of a modern

IV. OF COMPARISON.

When the mind exhibits to its own view, two, or more ideas, and is employed in examining their agreement, or disagreement with each other, it performs the operation of comparison; as when we consider the difference of colour, bulk, flavour, &c. between an orange and a pine-apple, certain incidents, with a reference to different periods of time and place; mens conduct, with respect to religious, moral, or legal precepts, &c. From those, and similar actions of the mind, arise all our *relative ideas* of *bigger, less, earlier, later, better, worse*, and the like.

writer, it is extremely difficult to discover the true meaning of each abbreviation for such he considers every single word which either represents a combination of ideas, or stands as the sign of a number of other words.

Thus having seen, first, that *abstraction* is the taking away of one, or more ideas, from others, with which they are naturally, or artificially combined: secondly, that *generalization* is to enlarge an abstract idea, so as to make it the mental pattern of all similar objects, though found resident in a variety of subjects, differing widely in every other respect: thirdly, that *composition* is the joining together of two or more ideas, or collections of ideas, and uniting them under one name: fourthly, that *comparison* consists in examining the agreement, or disagreement, between two or more ideas. Let us now take a view of things called substances, in which the objects of most of our simple ideas are resident.

CHAPTER III.

OF SUBSTANCES IN GENERAL.

Substance, *Substantia* [Latin] i. e. *sub se stans*. Writers on this subject say, *is a being that can subsist by itself, without dependence on any other created being*. A house, a horse, wood, stone, water, fire, a spirit, a body, an angel, are all substances.* They then describe it to be the subject of *modes* and *accidents*. It cannot, they say, be annihilated, or utterly destroyed and reduced to nothing, but by the power of God. With due deference to those gentlemen, they being entitled to great respect for the services, they have rendered mankind — With due deference, I say, to characters so

* Vide Watts's Logic, page 11th.

truly respectable, I conceive that denoting thus, fire, water, spirit, angel, &c. by the common name of substance, though it were strictly proper in a philosophical sense, tends to create useless divisions, such as *substance thinking*, *simple and compound substances*; *philosophical, elementary*, and *vulgar substances*; *pure and mixt*, &c. with all their definitions, which frequently over-load the mind, and cow the tyro in pursuit of useful information. Moreover, I have never yet witnessed the existence of a spirit independent of body, for though the mind be capable of abstracting spirit from matter, and be able to consider it as an independent being, it is no more than an idea, a creature of the mind. Who can prove that it has any *distinct existence in rerum natura*? If the thinking, or *cogitative* being, independent of body, be called a substance, because the mind is capable of contemplating it separate, and entirely detached from matter, then all our abstract ideas, such as the colour of an orange, the white observ-

able in snow, &c. may, for the same reason, be called substances; but neither the one nor the other have, I presume, been found to exist in nature totally independent of body, and therefore cannot be said to exist *without dependence on any other created being*.

Animal vitality is called life, so is the power of increase in vegetables; but with far less reason than the motion of a bird in the air should be called galloping, because the motion of a horse in full speed, is so denominated. The nature of fire too, is so extremely abstruse, that, though it be generally allowed to be material, it is by no means certain, whether it be of the common mass of matter, under peculiar modifications, or a specific substance *sui generis*, i. e. of its own kind.*

* A great deal has been said about fire quiescent, and fire in a state of action, without throwing any light on the mysterious nature of that principle. Fire is defined by some, to be an union of infinitely

It would be well, perhaps, were logicians and philosophers, to acknowledge their ignorance on these and similar subjects, and (since nothing but Greek or Latin terms are admissable) rank them as *non satis cognita res*, or things not sufficiently known.

small particles, scarcely adhering to each other, and a body of motion. Pure mercury, it is said, inclosed in a phial with a long neck, and kept in a gentle heat for the space of a year, is reduced to a solid, and its weight considerably increased: which increase, some suppose to be an accession of fire. All this, however, is fruitless speculation, since we are not fitted with organs sufficiently acute to clear up the mystery involved in such conjectures.

Logic, being an art which should teach us to use to advantage, the knowledge which is fairly within the reach of our faculties, ought not to be crowded with obscure subjects; and when they are necessarily noticed, care should be taken to shew how far our knowledge of them extends, and our ignorance of the rest should be frankly acknowledged. Were this maxim observed, we should have little to say, perhaps, about the substances called *spirits, angels, &c.*

Space, indeed, has a better title to the term substance, because *it subsists by itself without dependence on any other created being*; but all that has been written on life, fire, &c. serves but little, perhaps, to embrighten the ideas these objects themselves present to the mind. It may, then, be fairly concluded, that he who is conscious of his own thoughts and perceptions, has observed the effects of life in animals, noticed the increase of vegetation, is able to distinguish space from body, and has observed the effects of fire, knows as much of the nature of these subjects, as though he had read all the learned conjectures of those who have wandered in the dark expanse situated beyond the confines of human knowledge, in search of theories for which there is no rational support. We shall, therefore, distinguish corporeal beings by the name of substance, and rank spirit, thought, or life, fire, space, &c. should we have occasion to notice them under the term *subject*.

CHAPTER IV.OF MODES AND SUBSTANCE.

By reviewing what has been said about complex ideas, we shall soon have a clear notion of what is meant by *modes*. It has been said, that a number of simple objects co-exist in an orange, now as the orange itself is called a substance, because it has an independent subsistence, so the simple objects which are resident in it, as *colour*, *figure*, a *degree of density*, &c. are called modes, because they cannot exist alone, and are dependent on the substance.

Modes are *essential* or *accidental*. An *essential mode* or *attribute*, is that which is so necessary to the existence of the *subject*, that it cannot be taken away without

destroying its very nature. Thus *life* is *essential* to a *man*, for if he be deprived of it, he will be longer a man, but a corpse. *Fluidity* is an essential mode of *water*, for if it be congealed, it is no longer water, but ice. The particular *figure* of a *needle*, which is itself a mode of steel, comprises its absolute existence, for destroy the *figure* by fusion, and it is no longer a *needle*, but a bit of steel: it might, however, be *bright* or *rusty*, without affecting its nature as a needle, or a bit of steel. *Brightness* and *rustiness* are, therefore, called *accidental modes*. The aptness of a needle to penetrate cloth and its capacity, of taking a thread after it, are called properties, and are immediately derived from its figure. These properties are by some improperly called secondary essential modes.*

* It is unfortunate for the progress of knowledge, that two things so different in their nature, should be called by the same name, particularly when it is considered that the mind, from a conformity in

Modes are also either *absolute* or *relative*. An absolute mode belongs to the subject itself, as an *eye* and a *sharp point* are absolute modes of a needle, but its largeness or smallness, are modes which only exist with relation to others with which it may be compared; these are, therefore, called *relative modes*. Logical writers have further divided modes into *active*, *passive*, *natural*, *civil*, *moral*, *supernatural*, and many other classes, but they only serve to encumber the mind, for he who knows the meaning of the words will be in no great danger of mistaking a *natural* for a *moral mode*, and *supernatural ones* so seldom occur, that the mind needs but little caution against errors on that head. Moreover, he who

the terms, seems to expect a sort of resemblance in the things; thus *roundness* in a *bowl*, is called a *mode*, its aptness to roll is also called a *mode*, but it is evident that they differ as widely from one another, as *capacity* does from *form*.

knows that *action* is to *do*, and *passion* is to *bear*, on perceiving a man hewing down a tree with an axe, would readily discover that the man with his axe was active, and that the tree was completely passive.

The following logical creed, contains, perhaps, full as much as it may be necessary to add on this head.

First, I believe that there must exist, somehow, an *universal elementary* matter, totally destitute of character, mode, or attribute, yet capable of assuming all characters, modes, or attributes, forming the basis of animal, vegetable, mineral, and all other substances; that every thing which has assumed an *intelligible form*, must either be changed by animal or vegetable assimilation, or some other way return to, and become a part of this universal *chaos*, or *coluvies*, before it can lose all the absolute modes and attributes contained in it, so as to assume different modes and attributes,

and make a part of another substance; or, to be better understood, that the body of an animal must undergo such a change before it can become a part of a tree, and so with the tree, before it can lose the attributes of timber, and make a part of a fossil.* Probably this *chaos*, this *colluvies*,

* This, to some, might, perhaps, appear a whimsical notion, but it cannot be denied, that a great part of the matter of which this world is composed, is subject to transmutation, as the abundant produce of vegetation annually demonstrates. The almost incredible quantity of grain, fruit, herbage, &c. which each season affords, forming a part of the food of men and other animals, is changed into animated substance, or excerned with a total change of qualities; these animals, after a short period of existence, die, and their bodies are committed to the common mass, where they must lose all the *modes*, *properties*, and *attributes*, of the animal body, i. e. flesh, bone, &c. before they can assume the modes and properties of *clay*, or any other solid mass. Moreover, the immense quantity of iron, lead, copper, &c. which is annually extracted from ores, and converted into articles of use and ornament; the quantities of

might be the *air*, but as I am not fitted with organs calculated to ascertain the truth of these conjectures, I will not insist on the theory.

wool, flax, hemp, silk, timber, &c. produced and manufactured; and, in fact, a prodigious variety of other things, which this earth produces, and about which labour is employed, would become superabundant, and the surface of this orb would be encumbered with its own produce, did they not all suffer a gradual dissolution, nearly equal to the product, till they, with all the modifications art and industry have given them, become a part of the common chaos. This characterless matter, through the mediate power established by the Deity, in the mysterious and wonderful organization of the world, is again assimilated to, and forms a great part of each succeeding tribe of beings. Some, indeed, assume their attributes rapidly, and as hastily suffer dissolution; others are extremely durable, and stand the test of ages without seeming to suffer any marks of decay, as *glass*, *gold*, and *mercury*, which have been called *incorruptibles*, yet modern philosophy proves that they differ from other things more perishable only, as an insect, whose existence exceeds not two short hours of a summer's day, differs in point of longevity with the all surviving raven, or the elephant.

Secondly, I believe that *spirit*, or *thought*, is something different from common matter, because all matter does not think; but how, or in what manner it exists, whether it be *material*, or *immaterial*, I know not.

As by comparing two objects one with another, we frequently become better acquainted with both, let us now finally observe, that a substance is in some degree to its modes, what a name is to an association of ideas, or, (as it has been called) a complex idea. The substance, which has a real existence in nature, is a band of union to its modes. And a word, as an instrument of the mind, is a band of union to such a certain number of simple perceptions, as societies of men have united for their own accommodation. The modes in a natural substance are subject to many variations, but the substance, whatever it be, is still the same. So the simple perceptions in a mental combination, are subject to be changed by fashion and cir-

cumstances, but the *name* remains the *same*. *

It would be very difficult to discover, exactly, all the various modes resident in some complex beings, and it would be no less difficult to point out the exact number of simple perceptions, which are united in many associations under one name.

* This is a great source of error, from which the mathematical science is totally exempt.

AN

EPITOME OF LOGIC.

PART THE SECOND.

OF WORDS.

IT is maintained by some writers, that ideas are the signs of things, and that words are the signs of ideas; if it were invariably so, it would, perhaps, be as easy to demonstrate a moral, legal, or philosophical question by the use of words, as to solve a mathematical problem by means of numbers.

A numerical association may be easily analized, i. e. first resolved into inferior combinations, and at last reduced to simple units; these also may be readily joined together, so as again to make up the com-

position, and, as the name of each separate collection gives a clear notion of the exact number of simple objects composing it, there is little danger of error. Thus, on hearing the word pronounced which is the sign of the combination *six*, the mind readily knows that it is a composition of *six units*, which is equal to two smaller combinations denominated *three*, or to three still smaller associations denoted by the term *two*; and even all the higher compositions, which the mind cannot comprehend at first sight, by a little attention to order, may be resolved with the greatest accuracy.

But if we were to attempt an investigation of the simple ideas included in the terms *gratitude*, or *rescue*, and the order with which they are combined, we should not find it, perhaps, so easy a task. It is for this reason, that philosophers take leave of language, and, whenever they possibly can;

réduce their theories to mathematical proof.

When words are the signs of ideas (which is not always the case) they are only arbitrary sounds, which societies of men agree in adopting, as outward representatives of their thoughts, and have no natural connexion with the ideas which they are intended to signify. Thus the Latins distinguished the appearance which ink produces on paper, by the term *niger*, the French call it *noir*, and the English *black*. It is true that, in many instances, a word stands for a single idea; as *one* is always the sign of *unity*, *white* signifies the colour observable in *snow*, &c. *yellow* the hue of an *orange*, &c. so with the word *black*, and most other simple ideas, and when it so happens, there is no difficulty; as if I pronounce the word *black*, *white*, &c. in the hearing of an Englishman, who has seen these appearances, he readily understands me. But the greatest

part of the words in all languages, represent combinations of the mind, made up of a great variety of simple perceptions, with whose number, proportion, and arrangement, the names bear no analogy; and what is still more perplexing, words are very frequently used as signs of other words, and sometimes represent whole sentences.

When the same word signifies two or more collections of ideas, we are frequently led into error. The word *pound* having been adopted by the English, as the sign of several different associations of ideas, may, by one person, be conceived to mean a weight equal to 5760 grains, and by another 7000 grains, the difference between the pound troy, and avoirdupois weight.

Words are also *univocal*, or *equivocal*. A univocal word stands as the sign of *one idea*, or *one collection of ideas*; as *one* is

never applied to any other idea but *unity*, and *manifesto* is used solely to denominate that multifarious combination comprised in a public declaration. Equivocal words are such as are applied to two or more different ideas; as the word pound is not only the sign of similar objects differing in point of quantity, but is also used to signify twenty shillings, and a pinfold, or a prison to enclose beasts.* Nor is this to be wondered at, since we have an infinite number of ideas, for which there are no names; yet, with a strange profusion, two different words are sometimes used to signify the same idea, and then they are called synonymous, as *dwelling* and *habitation*, *residence* and *abode*.

* Doctor Watts has set down *book* and *house*, as univocal words, yet Dr. Samuel Johnson attributes five different meanings to the word *book*, and seven to the word *house*.

The next source of error, is the substituting of one word for one or two others, and sometimes a single word for a whole sentence: as the word *however*, in French *Quoi qu' il en soit*, is frequently a substitute for *notwithstanding*; *be that as it may*; *suppose I grant you every thing you have said*; *in whatever degree*; and many other fragments. *Adieu* is evidently a substitute for *A Dieu je vous commende*, or in English, I recommend you to God. It is very probable, that many single words, representing a collection of ideas, are no other than the first words, or titles, of certain sentences, orations, or colloquies, which, it is likely, were familiar in the primitive languages, till time had enveloped them in obscurity. So when we speak of *Credo*, or *Pater noster*, to a member of the Christian church, these words excite in his mind, without reciting them, the full power and force of the *Belief*, and *Lord's Prayer*, as effectually as the word *regiment*, pronounced to one acquainted with all the regulations and

etiquette of the army, would represent to his mind the ordinances, customs, &c. of that institution.

Indeed, all the interjections in every language, if they mean any thing, are no other than substitutes for fragments, or whole sentences. *Alas*, in the following verse, is a substitute for *poor miserable beings as we are*, or some similar words.

Alas! how little from the grave we claim?
Thou but preserv'st a form, and I, a name.

POPE'S EPIST.

Again:

-In youth alone, unhappy mortals live;
But, *ah!* the mighty bliss is fugitive;
Discolour'd sickness, anxious labour come,
And age, and death's inexorable doom.

DRYDEN'S VIRG.

Here *ah*, is a substitute for *to reflect on the following consequence is terrible*, or words tantamount to that meaning.

E

Though there may be no great danger of mistake in the above instances, other substitutions are certainly among the principal causes of error. This will, nevertheless, in a great measure, account for the difficulty of reducing many combinations into the simple perceptions of which they are said to be composed. As, however, men are continually endeavouring to shorten their language, by introducing single words for sentences, and frequently single letters for words, that language might bear some tolerable proportion to the wonderful rapidity of thought, these difficulties are likely to increase. All, therefore, we can do, is to be careful that, in the communication of our thoughts, we attach no other meaning to our words than what has prevailed by universal consent, and if there be the smallest doubt, since our language has been reduced to some standard, we may easily have recourse to good authorities. Moreover, when we are about to contend, it would be well, perhaps, were

we, as a preliminary, to enquire whether our opponents agree with us in the meaning of the words in dispute.

Presuming that the reader understands the difference between a *common*, and a *proper name*, and that whatever might be said of *complex* and *simple terms*, *special rules* to direct our conception of things, and the means of gaining clear and distinct ideas,* (though separately treated of by some logicians,) would tend to no great advantage, we shall proceed, at once, to definition.

* Lest we should be considered deficient, let us here observe, that *concrete* and *abstract terms*, if they deserve any notice at all, properly belong to the doctrine of relation; that *simple* and *complex terms* will be sufficiently considered in describing the component parts of a proposition; that the difference between words, *common* and *proper*, may be found in the grammars; and that the *causes* of *equivocal words*, and their *various kinds*, are rather matters of curiosity, than of useful information.

CHAPTER II.

OF DEFINITION.

The only objects capable of being defined are associations of ideas, i. e. either combinations of those simple perceptions excited by their originals, which appear to exist in natural or artificial subjects; or mental combinations, which have no united existence but in the mind. Now simple ideas, the principal part of which being only obtainable through the medium of the senses, cannot be defined; for the definition of the *thing* consists in nothing more than an exact enumeration of the simple perceptions, as they are impressed on the mind, on an examination of the subject in which their objects reside, with a description of their order of arrangement, and the properties their union produces, as

far as our senses will serve us. And a definition of a complex idea of reflection, is an accurate enumeration of the simple ideas composing a mental association under one name, together with their order of arrangement, &c. and all this is performed by the help of simple ideas, with names annexed to them, and the assistance of inferior combinations, for the sake of brevity, with the meaning of which the reader, or hearer, is supposed to be previously acquainted.

Let us now make an effort to define a round thing, with which gentlemen amuse themselves sometimes upon a green. We should begin first by saying that it is a *material being*—Here we begin with a combination with which the reader, or hearer, is supposed to be acquainted; for a material being is a composition of magnitude, extension, solidity, &c. — *of vegetable production*.— Here, also, vegetable production is a complex idea,

which is supposed to be known by the reader, or hearer, if not, it must be reduced:—*of that kind called timber*,—Here, again, if the reader, or hearer, be unacquainted with the general qualities of timber, the *difference*, or simple perceptions, discoverable by our senses, between that and other substances, must be nominated:—*and of that species of timber, called box*. — The special difference between that and other wood, if the reader, or hearer, be ignorant of it, must also be noted:—*of a spherical form*. — But what is a *spherical form*? That body, whose surface is formed by the extremity of right lines, of an equal and determinate length, proceeding, in all directions, from a point in the center. — But what is a *right line*? It is that figure which an atom would describe in passing the nearest way from one point to another. — We may yet be still far from having effected a definition, for *kind, figure, way, directions*, and several other combinations may be also unknown to the reader, or hearer, all of which must,

in that case, be reduced, the relative size, described, &c. to make the work complete.

It is necessary here to notice, that in this attempt to shew what a complete definition would be, all our observations have been employed about the *thing*; nothing having been yet said of the *name*, by which it is to be signified. This thing, then, the English have agreed to denominate a *bowl*; the Latins, *globus*; it is therefore evident, that the name is arbitrary, and but for the better convenience of understanding one another without the trouble of a special description, every man might call it by a different name. This would be exactly similar to its having no other denomination than *thing*, which is so general a name, that it is applicable to all beings in the creation but persons, and what it is to signify can never be understood without some sort of a definition. Now these means, whatever they may,

be, which are used to direct the mind to the particular object meant by such a word, are what logicians call the definition of the name.

Thus, then, the definition of the thing is effected by enumerating the simple ideas contained in a combination, together with their order of arrangement; and the definition of the name, by a *partial definition of the thing*, a synonymous term, a reference to the subject in which the thing resides, to its particular use, or by describing one or two of its properties; and to this sort of definition all simple ideas are subject, as yellow is a colour observable in an orange, &c.

Thus, to define the word *respect*, it is necessary we should say we mean *goodwill*, lest we should be supposed to signify no more than *common attention*. The word ring may be defined by saying, *it is an ornament to be worn on the finger*; for, in a

definition of the *name*, we always suppose our readers, or hearers, are previously acquainted with the *thing*, and we only inform them, in a brief manner, what the object is which the name is to signify. The word *house*, being equivocal, may be defined by the term *building*, or by saying it is a place in which men reside, to secure themselves from the inclemency of the weather; for when we speak of the *houses* of York and Lancaster, we mean two *families*, and not habitations. Again, to define the word *head*, to which there are attributed no less than thirty-one different meanings, it would be sufficient to say, *that part of an animal which contains the brain*. Or, in another sense, *the first place of honour*, &c.

There is nothing, perhaps, which causes more contention among the majority of mankind, than a want of due attention to the definition of the name; for it frequently happens, that two people mean

very different things by the same word, and being both conscious they are right, immediately get impetuous, and so eager, frequently, is each to shew the absurdity of his opponent's assertion, that an indifferent person has no opportunity of setting them right.

Another consideration, also of great importance, should make us particularly solicitous to know the true import of words; for it is under the cloud of obscure, dark, and unintelligible terms, that the greatest imposition is practised. Quacks of all descriptions impose on the credulous by them. How frequently does affected sagacity, in giving an opinion of a malady with which it is totally unacquainted, shield its ignorance by the words *affection of the nerves, depression of the animal spirits, and the like?* Were, indeed, such pretenders urged to an explanation, they must either take refuge in lofty unmeaning terms, still more obscure, or flatly

acknowledge their ignorance. We should, therefore, never rest satisfied with any word which is either unintelligible, or totally destitute of meaning.

It is, when we consider what an accurate definition of the thing is, that the incompetency of our knowledge shews itself in a most striking degree; let us consider what a labyrinth we should have been entangled in, had we, in our essay to define a bowl, attempted to trace every combination up to the highest source, i. e. to have resolved each into the simple perceptions of which, according to Mr. Locke's Theory, they must have been composed, and to which all our knowledge of things is reducible. From these considerations, it is evident, that we content ourselves with a very imperfect knowledge of things, and though mathematical combinations may be distinctly understood, we frequently know little more of other subjects, about which

we speak and write, than the names by which they are signified. And though some logical writers detail the rules of definition with so much facility, they would, perhaps, be a little embarrassed in reducing them to practice.*

* Mr. Duncan, in his *Elements of Logic*, seems to consider this no very difficult task, for, page 101, he says, "Now in tracing any very large number, when for the ease of the mind we consider it at first as composed of various others still lesser: if we next take these lesser parts to pieces, and pursue them continually, until we arrive at the units out of which they are composed; we thereby totally unravel the collection, and being able to push our researches no farther, rest satisfied in the view thus offered to the understanding. Just so it is in the examination of our complex ideas. For when any very compounded notion comes under the inspection of the mind, in order to be traced to its first principles; we begin with resolving it into other ideas less complicated; and taking these again to pieces one by one, still go on with the search, until we have broken the whole into our first and simple perceptions, beyond which the pursuit cannot possibly be carried.

Finding it tedious in the extreme, if not impossible, to enumerate in their exact order, all the simple perceptions contained in a large complex idea, we are generally satisfied with reducing them into combinations less complicated, and very seldom attempt the complete investigation of their first principles; and so, by this general process, effect the resolution and composition of these unwieldly combinations with great facility, as in the foregoing definition of a bowl; the inferior, or less complicated combinations, a *material being*, of that *vegetable substance called timber*, of a *spherical figure*, and of a *determinate size*, compose in the mind the idea of a bowl. — This is a composition of general ideas, and may be resolved again: first, by abstracting, or taking away its *figure*, and there will then remain a *material being of that substance called timber*; take away next, the complex idea, *timmer*, when *material being* will remain alone. Here we may observe, that a general composition and resolution

is very easy. Still further, however, to aid the business of investigation, there are established two general terms of distinction, called,

GENUS and SPECIES.

Genus is a Latin word for *kind*, and *species* is a word of the same language, signifying *sort*. The mind, like the eye, being unable to take into its view, and examine a great variety of objects at the same time, and finding every individual thing in this world distinguished by some particularity, as men differ from one another, in features, stature, age, &c. it has, for its own accommodation, recourse to an ingenious method of arranging the different beings presented to its notice, into classes. This is done, by noticing some striking attributes or qualities, and arranging all those beings, possessing such general characters, without regarding any other of their modes and properties, into one class.

Thus all that tribe of animals which is covered with feathers, though differing in every other respect, as the stork and wren, are classed under the term *bird*.

Now here, at once, we behold a *species*; for birds are a species of animal; but animal is a larger idea, since by taking notice of life and body only, it comprehends all living things; animal, therefore, is a *genus*, of which birds are a *species*.

Some species of beings, are classed by no *absolute mode*, but the element in which they live. Thus the inhabitants of the water, though differing as the whale does from the minnow, are classed under the term *fish*; and these again, by agreeing in some general qualities, are divided, by naturalists, into forty seven *genera*, and four hundred *species*.

The most general idea we can conceive, i. e. the highest *genus*, is denoted by the term *being*, because it implies nothing

more than bare existence. *Body* is a *species*, of which *being* is a *genus*: a *mineral* is a *species*, of which *body* is a *genus*: *metal* is a *species*, of which *mineral* is a *genus*: *gold* is a *species*, of which *metal* is a *genus*. Again, *body* is a *genus*, of which *animal* is a *species*: *mankind* is a *species*, of which *animal* is a *genus*: and the terms *white*, and *black*, will distinguish the species of mankind. To this we may add, place of birth, time of birth, name, &c. and thus particularize an individual.

It is evident, then, that the idea of *being* is the most general notion, or highest *genus* we are capable of framing; so the idea of *doing*, or the verb *to do*, is the highest genus of all ideas of action we are capable of framing. All ideas of existence are *special*, with respect to simple abstract existence, and all ideas of action are *special*, with respect to the general idea of *doing*. The most particular notions, both of existence and of action, are those

associations of ideas, which include all the essential, relative, and accidental modes, &c. together with time, place, circumstance, &c. descriptive of an identical being, or action, at a particular time, place, &c.—It is also evident, that as *body* is a *species* with respect to the more general idea, *being*, so it is a *genus*, with respect to the more special idea, a *mineral*. Again, though a mineral be a *species*, with reference to the more general idea, *body*, it is a *genus*, when compared to the still more special idea, *metal*. All the intermediate *genera*, between the highest *genus*, and the lowest *species*, are distinguished by the name of *subalterns*; and that genus, which has another genus between it and its species, is called the *remote genus*; and the one, whose species is immediately under it, is termed the *proximate genus*. As the genus *body* is remote with respect to its species *iron*, having between it

and the *species*, the *proximate genus mineral*.*

A *genus* is a name given to a rank of complex beings, agreeing in a few attributes; a *species* is formed by taking in a few more attributes, or modes, than is comprehended in the genus, which, of course, reduces its extent, as the name *animal* extends to more beings than the name *bird*; and were we to add attribute, property, and mode, till we have taken in all those which are known to exist in an individual, we actually, as far as our faculties serve us, enumerate the simple objects of perception, which are united in a natural combination, and thus compose, out of the most simple perceptions, a com-

* Should the reader's curiosity prompt him to take a view of the ten categories of Aristotle, he will find these learned trifles, in a book entitled, Harris's Philosophical Arrangements, dressed out in all the gaudy trappings of Greek and Latin.

plex idea. And by the reverse operation, i. e. by taking away one idea after another, till we have reduced the collection to a simple attribute or two, which distinguish the highest genus, we resolve it again into its first principles. But this, as it has been observed, is generally impracticable, for many mental combinations are so amazingly complicated, and so little are we acquainted with the *essence* of things, which is said to distinguish the *species* from the *genus*, and one species from another, that we must, in almost every instance, content ourselves with a partial definition, i. e. with the enumeration of a few attributes, properties, modes, or characters, using, as it may be convenient, either words signifying combinations, or simple ideas, as the occasion may require, and so effect the best explanation we can, as far as the thing is known. And let us again notice, that, notwithstanding the pompous modes of definition described by writers on this subject, so *perfect in*

their kind,* no man has yet completely adopted them, for all writers and speakers, invariably practice that kind of definition we have just described.

The following, however, is the mode of definition logicians have prescribed, and though it be nowise equal to mathematical accuracy, it is admirably calculated to methodize the mind in disposing in order the objects about which it is employed.

The *genus*, and *specific difference*, are said to make the complete definition of the species. They mean, by specific difference, the essential attributes, modes,

* Mr. Duncan, in his *Elements of Logic*, p. 144, concludes his doctrine of definition in the following words: "Thus at length, we have not only deduced that peculiar form of a definition which obtains among logicians, but shewn it also to be perfect in its kind, and to take in the whole compass of language."

or qualities, which are observed to exist in the *species*, more than those which are comprehended in the *proximate genus*, or genus immediately above: as *birds* are a species of the *genus animal*. The word animal, however, goes no farther than to comprehend body and life, or a living being. Now the specific difference between bird and animal is, that the body is covered with feathers, that it has two legs, two wings, a hard bony bill, &c. so that when we say a bird is an animal, whose body is covered with feathers, and that it has two legs, two wings, and a hard bony bill, we have given a logical definition of the species bird; or, in other words, we have added to the *genus animal*, the *specific difference*, and have thus completed the definition.

It would be tedious to begin all definitions by going up to the highest genus, and so come gradually down to the object about to be defined. As in the above

example, to have begun with the *genus* being, to have then taken in the specific difference of *body*, and finally, *life* and its attributes; as the genus animal is supposed to be previously known to the reader, or hearer, and sufficiently excited by its sign, the word *animal*. When, therefore, the ideas signified by the name of the genus, are completely known to the mind, and the specific difference is accurately stated and understood, then the *genus* and the *specific difference* may be fairly said to make up a complete definition.*

* Here what has been before hinted, may be clearly noticed, for the terms used to indicate the specific difference, instead of being the signs of simple ideas, or clear and definite combinations, as is always the case in the mathematics, represent very complicated combinations, as the words *feathers*, *legs*, *wings*, and a *bony bill*, in the reduction of which other combinations would probably occur not less complicated. And thus it will appear, that it is not so easy a matter to *unravel a complex idea*, as Mr. Duncan expresses it, who himself, I am inclined

Coin, or money, also, is a *genus* of which any particular piece is a *species*, and if we suppose the ideas, of which the word coin is made the sign, to be understood by the reader, or hearer, we may join the specific difference, or number of ideas, which we observe to distinguish any particular piece, to the *genus coin*, and so

to believe, would find the following familiar axiom of his own, page 120, Elements of Logic, very difficult in the execution. "Two things are therefore required in every definition. First, that all the original ideas, out of which the complex one is formed, be distinctly enumerated. Secondly, that the order and manner of combining them into one conception, be clearly explained." And in the next page concludes, with as much ease, as if any one could reduce it to practice, "When this is done, and the idea wholly unravelled, we have nothing more to do than fairly transcribe the appearance it makes on our own minds." But he seems carefully to have avoided hazarding an example of its application: excusing himself by observing, that the shortness of his work will not admit of it.

make up the definition. But if the genus coin, be not known, nor the higher genus metal, nor even the genus mineral, still more remote, we must begin with *body*, and join thereto the specific difference, to define mineral, and then take mineral as a genus, and add the specific difference, to define metal, and so from metal to gold coin; of a figure flat and circular, of a determinate diameter, bearing a legal impression, (which should be described, if not previously known,) weighing a little more than one forty fourth part of a pound, troy weight, current in Great Britain, of the value of twenty-one shillings, and thus we define a guinea.

When we can find the *essence*, as it is called, that is, any one grand attribute which constitutes the existence of a thing, the nominating of that essence completes the definition. Thus all bodies, whose outline or internal dimension describes a figure, or capacity, for which there is a

name, may be defined generally with a single word. Suppose we take as a genus, *measure*, we may effect the following definitions, by placing before it the word *ell*, *foot*, *inch*, *gallon*, *quart*, *pint*, each being the sign of its respective *essential difference* from the genus.

This essence too, when it can be discovered, will infallibly direct us in distinguishing species from species, and one individual from another. But many things are so nearly alike, and we are so little acquainted with the real essence of them, that we must rest satisfied with the best distinction of their difference which our faculties enable us to obtain.

Here, however, it will not be amiss to observe, that as we are highly blamable in using obscure and unmeaning terms, so are we in the other extreme, when we use long, unnecessary, and pedantic definitions. The use of definition being only to excite

in the mind of another the objects we have in idea, the shortest method by which we can completely effect it is always to be preferred. By attentively observing the means used in common language, we may easily discover what ingenious contrivances men have adopted to facilitate definition. Nay, several of the parts of speech, in every language, are dedicated solely to that business, and the following essay at a definition of the English parts of speech may not be found altogether improper.

Articles are instruments of definition. *Nouns* are signs of simple or complex ideas. *Pronouns* are substitutes for nouns. *Verbs* are signs of action, passion, and existence. *Adverbs* are instruments of definition. *Conjunctions* are substitutes to abridge the use of nouns, pronouns, and verbs. *Prepositions* are instruments of definition. *Interjections* are substitutes for whole sentences, or fragments thereof. Thus three out of eight parts of speech are employed

wholly in definition, and they may be thus exemplified.

Example of the articles. The word *man*, which distinguishes not between the whole human race and a single individual, by the addition of the article *a*, is made to signify *any man*, and by the article *the*, it becomes still more definite, as distinguishing *a man*, the idea of whom is then within the view of the mind.

Example of the adverb. The verb *to sing*, may be defined by the adverb *charmingly*, which is the *specific difference* between an indefinite mode of singing, and that which has the power to charm.

Example of the preposition. A man *beyond* the sea : here *beyond* is an instrument to define the local situation. A calf *with* two heads : here the preposition *with*, joins the particularity which distinguishes that monster to the complex idea of a calf, and

completes the definition. Thus we behold the peculiar use of these three parts of speech. If this subject alone were our particular business, much more might be added, but the nature of the object in view obliges us now to pursue our present design.

For having passed over many heavy, trifling, and useless subjects, which writers have treated at very great length, I shall conclude, as an apology, in the words of Dr. Watts, page 123. "After all, it must
"be confessed that an intimate knowledge
"of things, and a judicious observation,
"will assist in the business of definition,
"better than too nice and curious an
"attention to the mere formalities of
"logical writers, without a real acquaint-
"ance with things."

AN
EPITOME OF LOGIC.

PART THE THIRD.

CHAPTER I.

OF THE FIRST DEGREE OF HUMAN EVIDENCE.

THE highest and most certain of all human evidence, is that which the mind obtains on examining two ideas which it has received through the medium of different organs of sensation. If, for instance, the idea of the colour of an orange, and that of the sound of a bell, be presented for its consideration, their difference is so irresistibly obvious, that the mind, without a moment's reflection, is ready to pronounce, that *the colour of an orange is not the sound of a bell.*—Another obvious truth of the

first degree of evidence, and with which logical writers generally exemplify, is, that *the whole is greater than any of its parts*: and again, that *all the parts are equal to the whole*.

In the above, and all other instances where the mind, on contemplating two or more ideas, or things, is able instantly to affirm their agreement or disagreement, without using any means to direct its determination, or calling to its aid a third idea, the immediate knowledge which is thus obtained, is called *intuition*, from the Latin word *intuitus*, i. e. having regarded, or looked upon. The form of speaking, or writing the affirmation (for in either case we affirm that it is, or it is not,) which is the result of the examination, is called a *proposition*; thus the words used in the affirmation above, *the colour of an orange is not the sound of a bell*, compose a proposition, and so do those which affirm that *the whole is greater than any of its*

parts: and again, that all the parts of any thing are equal to the whole. All propositions of this kind are called self-evident, because they signify intuitive judgment; i. e. a judgment which the mind has formed by its own native faculties, instantly on beholding the things, or ideas, about which the proposition presents a determination.

The form of a proposition will be our next consideration.

CHAPTER II.

OF SIMPLE PROPOSITIONS.

A simple proposition is a single sentence in which the judgment of the mind is expressed, affirming either the agreement or disagreement of two simple ideas, or combinations of ideas: as

Man is mortal.

Gold is NOT animate.

The term whereof we affirm is called the subject, as *man*, and *gold*, in the above examples; and the term with which the subject is said to agree, or disagree, is called the *predicate*. Thus *mortal*, and *animate*, are the two predicates in the foregoing propositions. The word, or

words, representing the act of the mind in affirming, are called the *copula*, as *is*, and *is not*, in the two examples, and it must always consist of some inflection of the verb *to be*, either expressed, or implied.

It is not necessary that one sort of proposition should be always made up of three terms, as in the first example, nor that the other should consist of four, as in the second; for sometimes two words only are used, and the third understood: as

I think.

Now this is a complete proposition, for it signifies,

I AM thinking.

I am.

That is,

I AM existent.

• Cæsar fought.

That is,

Cæsar WAS fighting.

It also frequently happens, that many words are used to express the combination of ideas which is to form the subject, or the predicate of a proposition: as

A man lame with the gout walks slowly.

Now the subject, *a man lame with the gout*, indicates but one association of ideas, for which there happens, in English, to be no one name exactly including them all, and no more; but if we use a term a little more general, or in other words, take away a few of the ideas included in the combination, namely, those which define the cause of lameness, we shall find one English word which will exactly fit the remainder; that is the word *cripple*, and thus the proposition will have a simple appearance: as

A cripple walks slowly.

Let us now view an example wherein both the subject and predicate exhibit a

complexity in the terms, i. e. are made up of many words, and yet represent an association of ideas really existing together, to signify which (in English at least) no single term has yet been adopted; and therefore they must be made complete by the help of some instruments of definition, either to add something to an association the mind may make choice of, that is somewhat deficient, or to take away what is superfluous, should the mind find it more convenient to choose an association which is superabundant: as

A light carriage with four wheels, without a coach-box, runs swiftly on a road completely level.

Here it is plain, that all the words, except those printed in Italic, are used as instruments to make up and adjust those combinations for which the English have provided no single names. *With* adds four wheels: *without* takes away the coach box: *swiftly* adds the mode

of motion: and *completely level* joins a mode to road. Now the term *phaeton*, used metonymically, it is evident, frequently stands as a substitute for all these words.

When the subject of a proposition, or the predicate, or both, are made up of many words to complete the complex idea as above, the proposition is called, by logical writers, *complex*. These are unnecessarily divided into a great variety of classes; unnecessarily, most certainly, for they over-load the mind with useless distinctions, all of which amount to no more than what has been exemplified above; that is, to make up some association of ideas for which there is no single name.*

* To prove how trifling these distinctions are, let us quote a passage from Doctor Watts's Logic, page 164, on two of the different sorts of complex propositions. "If the term which is added to the

A proposition is also said to be complex when the pronoun *who*, *which*, or any of their oblique cases, is used in the subject, or predicate: as

The *youth* who cultivates his understanding is commendable.

The *fribble*, whose whole study is to ornament his sweet person, is despicable.

“ subject of a complex proposition be either essential
“ or any way necessary to it, then it is called *explicative*, for it only explains the subject; as, *Every mortal man is a son of Adam*. But if the term
“ added to make up the complex subject does not
“ necessarily or constantly belong to it, then it is
“ *determinative*, and limits the subject to a particular
“ part of its extension; as, *Every pious man shall be happy*. In the first proposition the word *mortal* is
“ merely *explicative*: In the second proposition the
“ word *pious* is *determinative*.” To prove that this
distinction is necessary, though it must be confessed
that it really exists, does not require a single sentence;

In each of the above examples there will appear two distinct propositions; that part printed in Italic is called the *primary*, and that in Roman letter is called the *incidental* proposition; this distinction, however, is of little importance, since the incidental proposition, in all such cases, can be considered as no other than a part of the combination which forms the subject.

for it is enough to know, that whether an *explicative* or *determinative* word be used, or even an *incidental proposition*, nothing more is meant than to determine the particular association of ideas which is to form the subject, or the predicate, of a proposition.

CHAPTER III.

OF COMPOUND PROPOSITIONS.

When the subject, or predicate of a proposition, or both, contain two or more ideas, or combinations of ideas, which may be resolved into other propositions, it is called compound: as

The English, the Dutch, the Germans, and the Spaniards fight the French.

Now this may be resolved into as many propositions as there are subjects: as, *The English fight the French. The Dutch fight the French, &c.* — Again:

The English fought the French, the Spaniards, the Dutch, and the Americans.

In this last example it is manifest we have four different predicates, and, of course, this proposition might be resolved into four distinct propositions, as demonstrated in the first example.

The following proposition consists of four subjects, and four predicates :

Cato, Varro, Cicero, Seneca, and the Emperor Antoninus, cultivated logic, physics, metaphysics, and ethics.

As a number of words, when employed to compose one combination, do not make a proposition compound, so, sometimes, that which appears to be a simple proposition shall, nevertheless, in effect be compound: as

Health is the greatest blessing.

Now here the word *greatest* implies, by relation, that there are other blessings, so

that the words, *of the many men enjoy*, are understood, which being read after those expressed, will make the sense complete, and constitute two distinct propositions. These may otherwise be thus resolved:

Men enjoy many blessings.

Health is the greatest blessing.

There are many similar instances where the proposition expressed implies a latent one, which logical writers notice under several heads, but with a small share of common sense and attention they may be readily discovered.

It will appear also that a proposition is not confined to any particular order of arrangement, and that the parts therefore can only be distinguished by attending to the ideas which are meant to be conveyed; this depends, in some instances, upon the idiom of the language, as the Latin word

crit implies a complete proposition, signifying, *he will be existent*: and if the subject may be said to be distinguished in any part of the word, it is in the two last letters. All the parts of a proposition, in English, may be transposed as the occasion may invite; this we may exemplify by the following proposition:

In America there are many large rivers, i. e.

Many large rivers are existent in America.

Thus we see the predicate stand first. Hence it will appear easy to discover the parts of a proposition, however transposed or complicated, if we attend to the ideas the words are designed to represent.

In some compound propositions the affirmation depends upon a condition expressed in the compound subject: as

If gold could procure immortality, the rich would never die.

This is called a conditional or hypothetical proposition, because the affirmation depends upon the truth or falsehood of the hypothesis or condition, printed in *Italic*. The first part of this proposition, or that containing the hypothesis, is called the *antecedent*, and the latter part, in Roman letter, is called the *consequent*. Now, as this is one of the most useful compound propositions, let us state the matter in such order as to exhibit all its parts:

If gold could procure immortality, the rich would
never **BE** dead.

So that the first part, printed in *Italic*, is the *antecedent*; the second, in Roman, is the *consequent*; the word in capitals is the *copula*; and the term dead, is the *predicate*.

Here let it be observed we are obliged to alter the verb *die*, into *be dead*, in order to introduce literally the *copula*, which is seldom practicable but by altering the conjugation of the verb.

Logicians divide compound propositions into *copulative*, *casual*, *relative*, *disjunctive*, and many other classes. Some of them obtain their denominations from the particles used in the composition of their subjects and predicates; and others, from very obvious reasons, which are easily discoverable to those who know any thing of grammar. The reader will readily perceive that the first example in this chapter is copulative, and the last hypothetical.

CHAPTER IV.

OF PURE AND MODAL PROPOSITIONS.

Logical writers also divide propositions into *pure* and *modal*. When, in a proposition, the agreement or repugnance is simply affirmed: as

Every honest man is a good citizen;

The proposition is called *pure*; but if, besides the matter and form, there be involved any mode or manner of connexion between the predicate and subject, it is called a *modal* proposition: as

It is necessary that every good citizen should be an honest man.

That part of this proposition printed in *Italic* is called the *mode*, and the latter part

the *diction*. There are four modes celebrated among logicians, namely, *necessary*, *possible*, *impossible*, and *contingent*. Some produce many more, as *moral*, *civil*, *lawful*, *unlawful* modes, &c. By some these modes are thought to belong to the copula; others say they are the predicate itself, and thus exemplify it:

That every good citizen should be an honest man is a *necessary thing*.

As, however, propositions are subject to other divisions of much more importance, we shall proceed immediately to take a view of them.

CHAPTER V.

OF AFFIRMATIVE AND NEGATIVE PROPOSITIONS,
OR A DIVISION ACCORDING TO THEIR
QUALITY.

When we first noticed what constituted a proposition, we observed, it was the words in which the mind affirmed its judgment either of the agreement or the repugnancy between two ideas, or associations of ideas. We have also seen, that it is the particular business of the copula to indicate this agreement or repugnance. When a single negative particle accompanies and stands with it, between the subject and predicate, it is evident that the effect of the copula, which declares that one thing belongs to another, is removed: as

Gold is NOT animate.

Thus animation is declared not to belong to gold; and here it is sufficiently manifest, that the negative particle removes the effect of the copula *is*, and that it has nothing to do with the subject and predicate. Sometimes, however, the negative particle stands remote from the copula, and some little consideration is necessary to discover whether it be used as a part of the subject or predicate; or is intended to operate upon the copula: as

Not a single day, by men who wish to cultivate their understanding, should be spent in idleness.

Here we may observe, that the particle *not*, though standing so remote, affects the copula, and makes the proposition mean the contrary to what it would without it; for the proposition, when regularly stated, would stand thus:

Men who wish to cultivate their understanding, should not spend a single day in idleness.

There are many instances where one or more negative particles are used in a proposition, yet neither of them affect the copula: as

A man of *no* religion is an infidel.

Again:

No man well educated is *uninformed*.

This is the same as saying, *all men well educated are informed*.

Thus it will appear, as has been before observed, that attending to the ideas meant to be conveyed, rather than regarding the words, or the order of their arrangement, is the surest way of discovering the true parts of a proposition.

Let it here be carefully noticed, that though propositions are called *affirmative* and *negative*, yet they are in fact all

affirmative; for the declaration of a repugnancy between two ideas, is no less affirmative than the declaration of an agreement,*

* This impropriety has certainly led Dr. Watts into an error, as appears in his *Logic*, note the first, page 157, where he says, "As there are some terms or words, and ideas, (as I have shewn before) concerning which it is hard to determine whether they are *negative* or *positive*, so there are some propositions concerning which it may be difficult to say, whether they *affirm* or *deny*: as, when we say, *Plato was no fool: Cicero was no unskilful orator: Caesar made no expedition to Muscovy: An oyster has no part like an eel: It is not necessary for a physician to speak French: and, for a physician to speak French is needless.* The sense of these propositions is very plain and easy, though logicians might squabble perhaps a whole day, whether they should rank them under the names of *negative* or *affirmative*." — Now can any thing be clearer than that there is a distinct repugnance between Plato and folly: Cicero and an unskilful orator: and that an expedition into Muscovy was not one of the expeditions of Cæsar? The same repugnance might be observed in all the other

and though we have followed the beaten track, it is most assuredly an improper mode of distinction.

instances Dr. Watts has stated. We should, perhaps, be under less difficulty, in determining to which class such propositions should be referred, were the terms *conjunctive* and *disjunctive* substituted to distinguish the quality of propositions, for *affirmative* and *negative*.

CHAPTER VI.

OF UNIVERSAL AND PARTICULAR PROPOSITIONS, OR A DIVISION ACCORDING TO THEIR QUANTITY.

To distinguish the quantity of a proposition, we must observe whether the predicate applies to all or every thing expressed in the subject, for in either case, the proposition is universal: as

All the men in Great Britain would compose a vast army.

Every earthly thing is perishable.

Here we perceive that the predicates apply universally in both examples, as is signified by the terms *all*, and *every*, standing before the respective subjects. Each

proposition is therefore called an *universal affirmative*.—Again,

No mineral is animate.

In this last example, it is clear that animation is affirmed to be universally repugnant to the whole class of mineral bodies, as appears by the particle *no* before the subject, and this sort of proposition is therefore called an *universal negative*.

In some propositions the subject appears with a mark of limitation; and, in such cases, the predicate does not apply universally: as

Some minerals ARE metal.

Thus it appears, that the word *some* limits the subject, and the predicate metal is only affirmed to belong to a part of the beings that the subject would otherwise signify, as appears by the restrictive term

some which precedes it; for this reason, such propositions are denominated *particular affirmatives*.

A mark of limitation also frequently restricts the subject of a negative proposition: as

Some men ARE NOT wise.

Thus the predicate *wise* is affirmed to be repugnant only to a part of mankind, as appears by the term of limitation *some*, and the proposition, therefore, is called a *particular negative*.

Here we behold examples of the four famous divisions of propositions, according to their *quality* and *quantity*.

There are, indeed, two other kinds of propositions noticed by logical writers, the one called *indefinite*, and the other *singular*; but these are distinctions confined to the

nature of the word which happens to be the subject of a proposition, and most certainly make no part of the propositional consideration.*

* All that can properly determine the quantity of a proposition, is the measure of effect which the predicate has on the subject; for whether the subject happen to be the name of a genus, used with the universal sign *all*, the name of an idea signifying an indefinite number of individuals, or a word representing a single object, if the predicate be attributed to, or disjoined from, the whole of the subject, the proposition is completely universal.

Let us take a view of three of the examples of Doctor Watts:

Universal. *Every creature had a beginning.*

Singular. *The palace at Hampton Court is a pleasant dwelling.*

Indefinite. *Angels are noble creatures.*—Watts's Logic, page 148.

Now the predicate, *a pleasant dwelling*, is as universally affirmed of the palace at Hampton-Court, as a beginning is of every creature; where then is the difference of quantity in a propositional consideration, or

Here, however, we must particularly notice, that the universality is not always to

the *measure* of effect which the predicate has on the subject? Do not the predicates reach to the utmost extent of both subjects? It is true that the terms *palace at Hampton-Court* represent an individual thing, and that the words *every creature* signify all the animals in the creation; and this is a proper distinction belonging to the *subjects alone*, and may be useful in considering the power, extent, and meaning of words, but is very improperly introduced in the measure of effect, which the predicate has on the subject of a proposition. Again, though words may be indefinite, a proposition can never be so, except we could find one wherein the *predicate is neither attributed to, nor disjoined from a subject, either wholly or partially*; or, in intelligible language, except we affirm that two things neither agree nor disagree, which is denying both non-entity and existence. The proposition above stated, which Dr. Watts calls indefinite, he acknowledges himself to be universal; "for," says he, "if there were an Angel that was not a noble creature this proposition would not be true." Again, he says, page 153, "In *indefinite propositions* the subject is often restrained by the predicate, or by the special time, place, or circumstances, as well as in propositions which are expressly universal; as, *The Chineses are ingenious silk-weavers*; that is, those Chineses which are *silk-weavers* are *ingenious* at their work. *The stars appear to us when the twilight is gone*;

be discovered by the words *all, every, no, none, &c.* nor the particularity by the restrictive

“ this can signify no more than the *stars* which are
“ above our horizon.”

In both the above instances it is manifest there is an inaccuracy, which has crept into the language for the sake of brevity; it is also clear that the word *Chineses* is too copious for the idea meant to be conveyed; and that the word *stars* is not a term expressing objects sufficiently definite; but this is by no means a propositional defect, as the first is a proposition completely universal, for the predicate is applicable not only to every thing which is meant in the subject, but, if taken literally, has a much larger extent; and, without any very extraordinary effort of the mind, the latter will be found to be particular.

What logicians call a *division of propositions according to their subject*, appears to me to be involved in much obscurity, and, in the consideration of which, I humbly conceive, Dr. Watts has a little entangled himself; for, page 154, he says, “ *Universal and particular terms in the plural number, taken in their collective sense, represent generally one collective idea. If this one collective idea be thus represented (whether by universal or particular terms) as the subject of a proposition, which describes the nature of a thing, it properly makes either a singular or indefinite proposition; for the words, all, some, a few, &c. do not then denote the quantity of the proposition, but are esteemed merely as terms which connect the individuals together, in order to compose one collective idea.*” Yet the Doctor, in the very next page, says, “ Now we have shewn

words *some, many, a few, &c.* for here also, as in most other instances, we must exercise

“before, that if a proposition describing the *nature of things* has an *indefinite* subject, it is generally to be “esteemed *universal* in its propositional sense: and if “it has a *singular* subject, in its propositional sense it is “always ranked with *universals*.”—So then it was not in a *propositional* sense that Dr. Watts called propositions *indefinite* and *singular*, for *indefinite* and *singular* propositions, says the Doctor, in their *propositional* sense, are esteemed *universal*. Again, page 286, the Doctor says, “In all “*universal* propositions the subject is *universal*, in all particular propositions the subject is *particular*,” and yet affirms above, that propositions with a *singular*, or an *indefinite* subject, are in their *propositional* sense esteemed *universal*.—Indeed, it is clear that the terms *collective, distributive, indefinite, and singular*, are distinctions belonging to the subject alone, and that the term *universal*, when applied to the subject, does not represent the same idea as when the Doctor applies it to the whole proposition; for it appears by his own words, that a subject may be *indefinite* or *singular*, and the proposition at the same time *universal*. It is true, that the *universal* sign *all*, frequently signifies *all* and *every*, and that it is not easy to discover which way the subject will be taken, till the mind perceives it by the sense of the proposition: it is also difficult to determine whether an *indefinite* subject, or those subjects preceded by the words *some, a few, &c.* be meant to operate *distributively* or *collectively* without examining the whole proposition, yet these are, doubtless, considerations totally distinct from what constitutes the *propositional* universality. Upon the

the powers of our mind, and consider what ideas the proposition is intended to signify:

as

Animals ARE mortal.

Now here the proposition has an indefinite aspect, but as it appears clearly to the

whole it is obvious, that though the world is greatly indebted to Dr. Watts, for his labours, yet he was not always accurate, for he sometimes followed the specious examples of others, without exercising his own judgment, and appeared to be not perfectly satisfied with what he had written on singular and indefinite propositions; for, after some further observations to support these distinctions, he finally concludes the subject in the following words:

“After all, we must be forced to confess, that the
“language of mankind, and the idioms of speech, are
“so exceedingly various, that it is hard to reduce them
“to a few rules; and if we would gain a just and precise
“idea of every *universal, particular, and indefinite*
“expression, we must not only consider the peculiar
“idiom of the language, but the time, the place, the
“occasion, the circumstances of the matter spoken of,
“and thus penetrate as far as possible into the design
“of the speaker or writer.”

mind, that the predicate mortality is really applicable to that *genus*, all the *species* comprehended under it, and every *individual* of each species, it is evidently a *universal affirmative*, though the sign *all* before the subject be omitted.

The universality of the following proposition, which has also an indefinite appearance, is easily discoverable by the same means: as

Men ARE NOT perfect.

Here the predicate perfection being compared to mankind, we presently perceive that it is not applicable to any one individual, and therefore pronounce the proposition an *universal negative*.—Again,

Men ARE deceitful.

This, as we only mean *some men*, is a *particular affirmative*.

We also say,

Women ARE *inconstant*.

This again signifies *some women* are *inconstant*, and is a *particular negative*.

Some writers strenuously maintain, that those propositions whose subject signifies an individual are the most limited kind of particular propositions: as

M. de Buffon supposes that the earth, as well as the other planets, are parts struck off from the body of the sun by the collision of comets.

It is certain, that the subject *M. de Buffon* signifies only one single person, but then it should be considered, that an individual subject might represent the whole creation: as

The *universe* displays the Creator's wisdom.

This *orb* on which we live revolves on its axis.

K

These propositions surely cannot be considered as the most limited.* Such

* Mr. Duncan, author of the Elements of Logic, page 165, with a degree of triumph, seems to think, that though logicians have hitherto never been able to agree to what class singular propositions ought to be referred, he has found it a very easy matter to determine the business. "There is," says he, page 165, "still one species of propositions that remains to be described; and which the more deserves our notice, as it is not yet agreed among logicians, to which of the two classes mentioned above they ought to be referred. I mean *singular* propositions; or those where the subject is an individual. Of this nature are the following: Sir Isaac Newton *was the inventor of fluxions*. This book contains *many useful truths*. What occasions some difficulty, as to the proper rank of these propositions, is, that the subject being taken according to the whole of its extension, they sometimes have the same effect in reasoning, as universals. But if it be considered, that they are in truth the most limited kind of particular propositions, and that no proposition can with propriety be called universal, but where the subject is some universal idea, we shall not be long in determining to which class they ought to be referred. When we say,

distinctions, however, as it has been before hinted, belong to the subjects alone,

"Some books contain useful truths: the proposition
 "is particular, because the general term appears
 "with a mark of restriction. If therefore we
 "say, *This book contains many useful truths:* it is
 "evident that the proposition must be still more
 "particular, as the limitation implied in the word
 "*this* is of a more confined nature, than in
 "the former case." This is a strange way
 of elucidating the subject, for the latter proposition, which is called the most particular, happens to be universal; and the first, which this gentleman considers somewhat larger, is limited; as it is evident that the words *some books*, mean some books of the number which are in the world, contain useful truths; and the predicate is applicable only to a part of this vast number. Now the word *this*, applied to the subject of the latter proposition, does not further limit the number of books which are in the world, but makes the subject integral, to which the predicate, *useful truths*, applies universally.

It might be said, that the subjects *universe* and *orb* signify collective ideas; pray what does the word *book*, as used above, represent but the idea of a collection of *chapters, pages, words, letters, &c.*? As the distinctions, *universal, particular, indefinite, and singular* are strictly proper, when applied to words alone, it is, per-

and the propositions are doubtless universal.

haps, the use of the terms *universal* and *particular*, to denote the quantity of propositions, i.e. the former to signify the *complete*, and the latter the *partial* effect of the predicate on the subject which has caused so much obscurity. For though most logical writers say, that if the subject be *universal*, *particular*, *indefinite* or *singular*, that the proposition must also be so considered; yet when they come to take notice of the quantity of propositions in forming syllogisms, where alone its consideration is useful, they all, without exception, discard every other distinction but the two above noticed, and rank all propositions, wherein the predicate applies to the whole of the subjects as *universal*, whether the word be *collective*, *distributive*, *plural*, or *singular*, and consider those alone whose subjects appear with a mark of limitation, as *particular*. Upon the whole, it will appear, that many logical writers confound two different ideas under the terms *propositional quantity*. When speaking of propositions *abstractly*, they consider quantity only as a characteristic of the *subject* of a proposition, which is a *verbal distinction*; but when noticing the *propositional quantity* in the formation of syllogisms, they then would signify by it the *extent in which the subject is taken*, with respect to the *predicate*, which is a *propositional distinction*.

CHAPTER VII.

OF THE SEVERAL KINDS OF UNIVERSALITY.

WE shall find, upon examination, that sometimes a word which is the sign of a rank of beings, or a collective number of individuals, and is preceded by the universal sign *all*, or *every*, does yet admit of some exceptions, and hence arise the three distinctions of *metaphysical*, *physical*, and *moral* universality.

A *metaphysical* universality, is, when all the particulars comprehended in, or under any universal word which might happen to become the subject of a proposition, may be both individually and collectively applied to by the predicate:

as

All animals must die.

K 3

Here the predicate applies to every animal, without any possible exception. A *physical* universality admits of some exceptions, arising from natural defects, &c. as

All men shall behold the light of the sun.

Those who are born blind, however, must be excepted. In a *moral* universality, the predicate only applies to the greatest part of the individuals comprehended in the subject; and all that is meant in the proposition is, that it is usually so: as

All mothers have a natural tenderness for their own children.

But, to the disgrace of humanity, we know that many mothers have murdered their own offspring.

These three distinctions, let it be observed, do not in the least affect the

quantity of the proposition, for be the universality *metaphysical*, *physical*, or *moral*, the proposition is still an universal of one sort or the other; these distinctions, therefore, only teach us in what cases the application of a predicate to a subject, signifying a whole rank of beings, or a collective number, admits of no possible exception, and where, in other instances, some exceptions are admissible.

CHAPTER VIII.

OF THE CONVERSION OF PROPOSITIONS.

WHAT logicians mean by conversion, is, the transposition of the subject and predicate, and yet preserving the same sense. This may be generally done in particular affirmatives, and universal negatives: as

Some physic is a poison.

Some poison is a physic.

No stone is an animal.

No animal is a stone.

This also may be frequently effected where the predicate is a sort of a definition of the subject, or when the predicate and subject are synonymous terms: as

A Blackmoor is a Negro.

A Negro is a Blackmoor.

In a superlative degree of any property or quality, this is also often practicable: as

Solomon was the wisest man.

The wisest man was Solomon.

In fact, any words which comprehend the same ideas, exactly of the same extension, will admit of conversion: as

Adam was the first man.

The first man was Adam.

This chapter, indeed, is of so little use, that it might have been very well omitted. It may not be improper, however, to inform the reader that, though this chapter be of little importance, a tolerable knowledge of the contents of all those which precede it, on the doctrine of propositions, will greatly facilitate his progress through the subjects which will be next submitted to his consideration.

ETHICS OF LOGIC

THE FIRST PART OF THIS BOOK
IS A HISTORY OF THE LOGIC
FROM THE GREEKS TO THE
PRESENT. THE SECOND PART
IS A HISTORY OF THE LOGIC
FROM THE GREEKS TO THE
PRESENT. THE THIRD PART
IS A HISTORY OF THE LOGIC
FROM THE GREEKS TO THE
PRESENT. THE FOURTH PART
IS A HISTORY OF THE LOGIC
FROM THE GREEKS TO THE
PRESENT. THE FIFTH PART
IS A HISTORY OF THE LOGIC
FROM THE GREEKS TO THE
PRESENT. THE SIXTH PART
IS A HISTORY OF THE LOGIC
FROM THE GREEKS TO THE
PRESENT. THE SEVENTH PART
IS A HISTORY OF THE LOGIC
FROM THE GREEKS TO THE
PRESENT. THE EIGHTH PART
IS A HISTORY OF THE LOGIC
FROM THE GREEKS TO THE
PRESENT. THE NINTH PART
IS A HISTORY OF THE LOGIC
FROM THE GREEKS TO THE
PRESENT. THE TENTH PART
IS A HISTORY OF THE LOGIC
FROM THE GREEKS TO THE
PRESENT.

AN
EPITOME OF LOGIC.

PART THE FOURTH.

OF THE SECOND DEGREE OF HUMAN
EVIDENCE.

HAVING noticed the various modes of language in which the intuitive judgment of the mind is expressed, or, in other words, having viewed the doctrine of propositions, it may be observed, that, in communicating our thoughts, we cannot utter or write one sentence without using a proposition. In an interrogation, we enquire whether the predicate be applicable or repugnant to the subject; in the imperative mode of expression, we command

the agreement or disagreement of the predicate with the subject; in the optative, we wish for their agreement or disagreement; in the potential, we signify the possibility of their agreement or disagreement; so that propositions are continually in use. It is by their means we attribute the mode to its proper subject, the individual to its species, the species to its genus, and their properties and relations to things themselves. Since then, propositions are used to express the judgment of the mind, formed under such an infinite variety of circumstances, on the innumerable objects which present themselves for our consideration, it is no wonder that logicians, in attempting to class them too minutely, should have found themselves a little embarrassed.

What we have hitherto noticed are self-evident judgments; but it frequently happens, that two or more objects present themselves for our consideration, whose agreement or repugnance is not imme-

diately discoverable. In such cases the mind begins to search in its own store house for some test to direct its judgment ; as a goldsmith, on observing a ring heavy and yellow, looks about in his shop to find his scales, his gauge, or a drop of aqua fortis, to try it, before he is enabled, with any tolerable certainty, to pronounce that it is, or it is not gold.

For example, suppose we were requested to affirm, whether every advantage which might be taken of an enemy be justifiable or not. It is common, indeed, to answer in the affirmative. Let us not, however, take it for granted, because it is a vulgar saying, but, like the goldsmith in his shop, search for a measure in our minds, by the application of which to the two objects under consideration, we may venture to determine with some degree of certainty. We will take then, as a measure, *private assassination*. Now if private assassination belong to the *subject* of the

proposition under consideration, that is, if it be one among the number of advantages which might be taken, comprehended in the *subject*, and be, at the same time, repugnant to the *predicate justifiable*, we may fairly declare, that some advantage which might be taken of an enemy is not justifiable. If we state the proof of this question in a logical form, it will stand thus:

Private assassination of an enemy is not justifiable,
Some advantage which might be taken of an enemy
is private assassination;
Therefore, some advantage which might be taken of
an enemy is not justifiable.

Here we behold an example of what is called the art of reasoning; the evidence thence obtained is called *demonstration*, and the form of words, or the three propositions in which the proof is stated, is called a *syllogism*.

When the reasoning is performed with accuracy, the result is no less certain than intuitive judgment itself, for it has the same ground of evidence: as in the above syllogism, if it be not self-evident that private assassination is not justifiable, and that it is one of the advantages which might be taken of an enemy, there is nothing to justify the conclusion. But this will be better understood as we proceed.

CHAPTER II.

OF THE USE OF SYLLOGISMS.

SYLLOGISMS were originally intended to reduce reasoning to a certain number of rules, by attending to which, men were supposed to be able to discover, from intuitive truths, which the mind instantly acknowledges, those which are more remote, and not reducible to its determination, but by means of intermediate steps; but they most certainly never, in the smallest degree, answered the purpose for which they were intended. Syllogisms are, however, rendered venerable, in some degree, by their antiquity.

Mr. Locke says, " their only use is
" in shewing the connexion of proof in

“any instance; nor, (he further adds)
“are they of any great use even here;
“since the mind can perceive such con-
“nexion where it really is, as easily, nay,
“perhaps better, without them. We find
“men reason very strongly, who do not
“know how to make a syllogism.” The
same writer justly observes, that “this way
“of reasoning discovers no new proofs,
“nor makes any discoveries, but is wholly
“conversant in marshalling and ranging
“those we already have: a man must
“know, before he be able to prove syllo-
“gistically; so that the syllogism comes
“after, when we have but little use
“for it.”

All this is very true, but as men do
reason without shackling themselves with
any rules, and for the sake of dispatch
leave much to be understood by the reader
or hearer, a general knowledge of syllo-
gistical method, though it does not assist
us in reasoning, at least enables us to fill

up defects in the reasoning of others, to exhibit the ground on which we form our own judgment, and to shew the connexion of proof from the intuitive evidence down to the conclusion, in a much more orderly manner than any which is practised in common language.

A celebrated stoic said, " Since it is " reason which sets in order and finishes " all things, it ought not itself to be left in " disorder." In short, the forms of a syllogism may be considered to reasoning, what a gauge, or a scale, is to some branches of mechanism; that is, a standard to which every operation may be reduced to prove its accuracy. There are, however, many purposes to which the mathematics are applied, which do not require a very nice determination, and then, there is no necessity for having recourse to the use of the scale, or gauge. It is exactly so with reasoning: the common modes are generally minute enough, but in cases where

the utmost exactitude is required, the truth of the reasoning may be put to the test, by being reduced into some syllogistical form.—For example :

Wise men should be moderate, for excesses will cause disease.

Now this is an act of reasoning in common language, wherein a syllogism is implied; and to a man who knows nothing of a syllogism, no deficiency might appear in the sense, which, indeed, is perhaps minute enough for an ordinary occasion; yet it will strike one but slightly acquainted with a syllogism, to be incomplete. But in other instances, where all the parts of a proof are important, and require an exact minuteness, there is no form of words, perhaps, shorter, nor any mode of expression by any means so well calculated to shew the concatenation of proof, as a syllogism. I shall, therefore, without attempting to exemplify mood and figure

at large, endeavour briefly to simplify that intricate doctrine, which many writers, as though inclined to increase the perplexity, have rendered exceedingly mysterious, by involving them in Greek and Latin terms.

CHAPTER III.

OF SYLLOGISMS.

A syllogism consists of three propositions, shewing the reason why two ideas are affirmed to agree, or disagree with one another, by means of a third idea, whose agreement or disagreement with the two others is supposed to be self-evident: as

Major. All *vicious men* are despicable,

Minor. Every libertine is a *vicious man*;

Conclusion. Therefore, every libertine is despicable.

Libertine and *despicable* are called the two extremes, and the words *vicious men*, are called the middle term; for though there were ever so many words, if they

stand as the sign of one idea, or association of ideas, they are still, by logicians, denominated the middle term, the same as though they were signified by a single word. Let us now state the matter in order:

Major term.	Middle term,	Minor term.
Despicable.	Vicious men.	Libertine.

These three terms are called the *remote* matter of a syllogism, but the three propositions into which they are formed, as above, are called the *proximate* matter. That proposition which contains the major term, or the predicate of the conclusion connected with the *middle term*, is called the *major proposition*, and is usually placed first, as above. That in which the minor term, or subject of the conclusion, is joined to the *middle term*, is called the *minor proposition*, and has the second place. These two propositions, one comparing the middle

term with the predicate of the conclusion, and the other comparing it with its subject, are called the *premises*. The *middle term* itself is frequently called the *argument*. And the proposition, in which is affirmed the agreement or repugnancy of the two extremes, stands last, and is called the *conclusion*, as in the above example.

The truth of all conclusions is established on the intuitive certainty which the mind is supposed to perceive between the *middle term* and the two *extremes* of the conclusion. In the preceding example, it is supposed to be self-evident that the predicate of the conclusion *despicable* might be attributed to the middle term *vicious men*, and that *libertines* are included in the term *vicious men*; or in other words, that libertinism is a *species* of which vice is the *genus*. And it is an axiom in logic, that *what might be affirmed of a genus, might be extended to every species comprehended under it, and what might be affirmed of a species,*

might be also affirmed of every individual of the species, but not *vice versa*. Thus then, it is easy to perceive, that as far as the predicate agrees with the middle term in the *major proposition*, and the subject agrees with the middle term in the *minor*, so far must the predicate agree with the subject in the conclusion.—Again :

Maj. Men without perseverance become not great scholars,

Min. Idle men are without perseverance ;

Con. Therefore, idle men become not great scholars.

Here, also, the middle term, *men without perseverance*, is compared with the predicate of the conclusion, *become not great scholars* ; and their repugnancy, which is supposed to be self-evident, is affirmed in the major proposition. In the minor, the middle term is compared with the subject of the conclusion, with which it is perceived perfectly

to agree. Nothing, then, can be more evident, than, if the middle term agrees with the subject of the conclusion, and disagrees with the predicate, that so far must the subject and predicate disagree with one another.

The illatives *therefore* and *then*, are generally used by logical writers to infer the agreement or repugnancy in the conclusion, though in common language, *for* and *because* are more frequently applied as signs of reasoning, and wherever these signs have an illative effect in language, there a complete syllogism is implied, though usually no more than two propositions are expressed, and those are generally stated without any regard to artificial order : as in the instance adduced in the last chapter.

Every wise man should be moderate, for [or because]
excesses will cause disease.

M

The reader will discover this sentence, reduced to a regular syllogism, in the further progress of this work.

CHAPTER IV.

OF SIMPLE OR CATEGORICAL SYLLOGISMS, CON-
SIDERED ACCORDING TO THEIR QUALITY
AND QUANTITY.

IN a simple or categorical syllogism, the middle term is distinctly compared with the predicate of the conclusion in the major proposition, and with the subject of the conclusion in the minor, as will be presently exemplified.

Syllogisms, like the propositions of which they are composed, are divided into *affirmative* and *negative*, *universal* and *particular*. Whenever, in the conclusion of a syllogism, the predicate applies wholly to the subject, without any limitation, whether the subject be a genus, a species,

an individual, or an indeterminate number comprised in one idea, taken distributively or collectively, the syllogism is an *universal affirmative*: as in the first example of the last chapter, where *despicable* is universally affirmed of *libertine*. If the predicate be repugnant to the subject without any restriction, the syllogism is called an *universal negative*: as in the second example in the last chapter, where the predicate, *become not great scholars*, is affirmed to be universally repugnant to *idle men*. When in the conclusion, the affirmation of agreement or repugnance is limited, as in the doctrine of propositions, the syllogism is called a *particular affirmative*, or a *particular negative*, as the case may be.

Here it is proper *particularly* to distinguish the *universality* of the *proposition* from the *universality* of the *subject* thereof; universality, in a propositional sense, signifies the complete agreement, or complete

repugnancy, between the subject and predicate, whether the subject, in its own nature, be an universal *collective*, an universal *distributive*, an *indefinite*, or a *singular* term. But what constitutes *universality* in the *subject* is, that it must either be a genus including every species comprehended under it, or a species including every individual; so that what is affirmed *universally* of such a general word, or universal subject, might be affirmed of every individual separately, within the comprehension of the general term. On this consideration is founded the following axiom, *particular subjects are contained in universals, and may be inferred from them; but universals are not contained in particulars, and therefore cannot be inferred from them*; as page 117, we affirmed, that *all vicious men were despicable*; now all vicious men being an universal subject, and finding that libertinism was a species comprehended

in that universal idea, we were enabled to infer, upon the ground of the above axiom, that a libertine must of course be despicable.

CHAPTER V.

OF MOOD AND FIGURE.

TO give the reader some idea of those rules which have considerably swollen many logical treatises, and by the knowledge of which men were supposed to be able, in some degree, to reason mechanically, we shall briefly consider what logicians call mood and figure. By *mood*, they mean the arrangement of the three propositions in a syllogism, according to their *quality* and *quantity*. This is done by adopting the letters A, E, I, O,

to distinguish the four orders into which propositions are divided: as

A	} signifies	{	Universal affirmative.
E			Universal negative.
I			Particular affirmative.
O			Particular negative.

And thus they may be applied to a syllogism:

- E. Those who form hasty resolutions are not wise.
- A. Violent men form hasty resolutions;
- E. Therefore, violent men are not wise.

Here E is the sign of the major proposition, which is an universal negative. A is the sign of the minor, which is an universal affirmative. E again represents the conclusion, which is an universal negative.

As, however, it would be very difficult to retain in memory the various changes

of these four letters in forming fourteen moods (that being the number which are considered useful) the several arrangements of them are disposed, according to their necessary order, in fourteen artificial words, called moods; because each contains three letters, directing the quality and quantity of the three propositions, which are to form the syllogism.

What logicians mean by *figure*, is the particular situation of the *middle term*, with respect to the *major* and *minor*. There are four figures, but three only are worthy of notice. In the first figure, the *middle term* is the subject of the *major proposition*, and the *predicate* of the *minor*; it contains four moods, i. e. four of the fourteen artificial words, namely, BARBARA, CELARENT, DARII, FERIO. This figure answers the purpose of exhibiting the concatenation of reasoning in every possible instance, for the syllogisms of all the other figures are reducible to some

sylogism of the first figure, and it admits of every conclusion, that is, A, E, I, O.

All the moods in the first figure exemplified.

BAI- Those who know that excesses will cause disease should be moderate;

ba- All wise men know that excesses will cause disease;

IA- Therefore, all wise men should be moderate.

CE- That which is prudent is not blamable;

IA- To conceal involuntary emotions of anger is prudent;

rent- Therefore, to conceal involuntary emotions of anger is not blamable.

DA- All the aged and poor are proper objects of our charity;

II- Some of the most profligate are aged and poor;

I- Therefore, some of the most profligate are proper objects of our charity.

FE- Nothing offensive to delicacy should be used;

II- Some words are offensive to delicacy;

O- Therefore, some words should not be used.

Thus it appears, that in the first figure the major proposition must be always *universal*, and the minor *affirmative*.

Here again it may be observed, that the formation of words, to shew the various changes of the letters A, E, I, O, is an ingenious contrivance to assist the memory; for if we speak of the last syllogism, it is readier to call it a syllogism in *Ferio*, than to say, that mood of the first figure signified by E in the major proposition, I in the minor, and O in the conclusion. Besides, without some such a device, we should be liable to confound the order of the letters.

It has been before observed, that the connexion of proof, in all questions, might be exhibited in this figure; a few brief remarks, therefore, upon the rational effect of it, before we proceed further, may be found very apposite. Now as it

has been before hinted, whatever predicate might be affirmed to agree or disagree with a general word, or a genus, might be affirmed to agree or disagree with every species beneath it. Thus, what we affirm of the word *thing*, might be affirmed of every object in the creation but persons. For example, if we affirm that *all things* will dissolve; we may then with safety conclude that all animals will dissolve; that all palaces will dissolve; that all gold and jewels will dissolve; and finally, that the great globe itself will dissolve; for all these are special names of beings, and *thing* is a general name for them all; but personage, which is attributed to the Deity, as well as to mankind, is not included in the general term. Though generals include specials, specials do not include generals; for we can affirm with truth, that every bird is an animal, but we cannot say every animal is a bird. Let us then bear in mind, that an affirmation of the agreement or repugnance of a genus, and any other thing,

reaches from the genus to every species, and to every individual in each species; and we shall soon clearly perceive the means of ratiocination in the first figure.

The middle term, which is invented to shew the connexion of the two extremes, must always be, or comprehend under it, the minor term, or subject of the conclusion, as in all the preceding examples. The first, in Barbara, has for the middle term, *all those who know that excesses will cause disease*: now in that general idea, whose agreement with the major term *moderate*, is supposed to be self-evident, is included the minor term, or subject of the conclusion, *all wise men*, they being a part, at least, of those who know that excesses will cause disease, and thus the conclusion of course must be true; for we only infer, with respect to the species, what is allowed to be self-evident with respect to its genus. Again: the middle term of the next, in Celarent, is, *that which is*

prudent: the minor term is, *to conceal involuntary emotions of anger*, which is a species of prudence; and if prudence, as a genus, be considered self-evidently repugnant to that which is blamable, its species must be so too; the conclusion therefore must be admitted. In the major proposition we affirm something of a large idea, including the minor term; and, in the minor proposition, we shew that the minor term is included in that large idea; the conclusion then formally avows what has been admitted in the premises.

The moods of the second figure exemplified.

In the second figure, which admits of negative conclusions only, the major proposition is always universal, and one of the premises is negative. It contains the four following moods; CESARE, CAMESTRES,

Festino, Baroco ; and the middle term is the predicate of both premises : as

CE- Disgrace is not an affliction of nature ;
 SA- Personal deformity is an affliction of nature ;
 TE. Therefore, personal deformity is no disgrace.

CA- All polite demeanour commands respect ;
 MES- No affectation commands respect ;
 TRES. Therefore, no affectation is polite demeanour.

FES- Men of strict veracity will not sport with the truth ;
 ti- Some jocose men will sport with the truth ;
 no. Therefore, some jocose men are not of strict veracity.

BA- Whosoever leaves the mansion of opulence, to comfort and relieve the poor and distressed, is truly benevolent ;
 ro- Some people of great fortune are not truly benevolent ;
 co. Therefore, some people of great fortune leave not the mansion of opulence, to comfort and relieve the poor and distressed.

Of the third figure.

The third figure has six moods, namely, DARAPTI, FELAPTON, DISAMIS, DATISI, BOCARDO, FERISON. The middle term must be the subject of both premises; the minor proposition must be affirmative, and the conclusion particular : as

- DA- Whosoever assists the progress of learning
is truly respectable;
FAP- All those who assist the progress of learning
have their foibles;
II. Therefore, some who have foibles are truly
respectable.

Those who are inclined may easily form examples of the other five moods.

The fourth figure is deemed totally useless.

Before we conclude this chapter, let us observe, that *if either of the premises of a*

syllogism be negative, the conclusion must be negative. If one of the premises be particular, the conclusion must be particular. No conclusion can be drawn either from two negative premises, or from two premises which are particular.

CHAPTER VI.OF COMPLEX SYLLOGISMS.

A Syllogism is said to be complex, when the subject and predicate of the conclusion are not so divided as to be distinctly compared with the middle term in each of the premises: as

War is a *dreadful calamity*;

The ambitious *promote* war;

Therefore, the ambitious *promote a dreadful calamity*.

The better to understand this distinction, let it again be observed, that whatever verb seems to be the copula of a proposition, some inflection of the verb *to be* is never-

theless implied, and the verb which appears to be the copula, is always a part of the predicate; thus the conclusion of the above syllogism means, The ambitious are *promoting a dreadful calamity*; so that, *promote a dreadful calamity*, is the predicate; the latter part of which, *a dreadful calamity*, is compared with the middle term, *war*, in the major proposition; and the former part, that is, the verb *promote*, is compared with it in the minor; the syllogism is therefore complex, according to the above definition.—Again:

Whosoever despises any of the dispensations of providence deserves contempt ;

An displeasing person is a dispensation of providence ;

Therefore, whosoever despises an displeasing person deserves contempt.

Here it is manifest, that the *subject* of the conclusion is not compared with the middle term in a distinct proposition, but is divided, one part being compared with it

in the major, and the other in the minor ;
the syllogism is therefore complex.

A syllogism is also complex when an *exceptive* or an *exclusive* adverb is used in the premises: as

None but the pious find comfort on a death bed ;
Those who are truly penitent are pious ;
Therefore, those who are truly penitent find comfort on a death bed.

Or,

The wicked man is not truly penitent ;
Therefore, the wicked man finds no comfort on a death bed.

A comparative argument will be complex: as

Platina is heavier than mercury ;
Gold is heavier than platina ;
Therefore, gold is heavier than mercury.

In short, there are so many ways by which a syllogism may be rendered complex,

and of so little use are the distinctions, that it would be folly in the extreme to attempt to enumerate them; nor is it by any means necessary, for most of them might be reduced to simple syllogisms: as

- Bar- War is a dreadful calamity ;
 ba- A thing which the ambitious promote is war ;
 ra. Therefore, a thing which the ambitious
 promote is a dreadful calamity.

This however is of little use, the reasoning being sufficiently clear without it. Besides, whenever we entertain any doubts respecting the truth of a syllogism, whether regular or complex, or of any other kind which we may notice as we proceed, we have only to examine the premises; if we find they contain the conclusion, either *explicitly* or *implicitly*, the syllogism is true; as the major proposition of the last example declares, that *war is a dreadful calamity*, the minor affirms *that the ambitious promote war*, in which together will be found expressly the words of the conclu-

sion. Again, in the major of the preceding complex syllogism, platina is affirmed to be heavier than mercury; the minor declares gold to be heavier than platina; it is then evidently implied, that gold is heavier than mercury.

In a negative syllogism, the major proposition usually contains the whole of the conclusion, and the minor only affirms that it does contain it: as

Those who ridicule age and infirmity cannot be considered as rational beings;

Some thoughtless young men ridicule age and infirmity;

Therefore, some thoughtless young men cannot be considered as rational beings.

Here the first proposition implicitly contains the conclusion, *for thoughtless young men* are included in, or are a part of *those who ridicule age and infirmity*, and this the minor proposition affirms: thus then, without reducing the syllogism, or transposing the words, we may easily discover its truth or falsehood.

CHAPTER VII.

OF CONJUNCTIVE SYLLOGISMS.

WHEN the major proposition is composed of several distinct parts, the syllogism is usually called *conjunctive*. Four sorts are principally noticed by logical writers, namely, *hypothetical*, or *conditional*, *disjunctive*, *relative*, and *connexive*. In the antecedent, or first part, of a conditional syllogism, an hypothesis is stated, on the ground of which the consequent, or second part of the major affirms; when the minor proposition, without noticing the antecedent, must affirm or contradict the consequent, that the antecedent

might be affirmed, or contradicted in the conclusion: as

If nature be uniform in her laws, we have nothing to fear from an eclipse of the sun;

Nature is uniform in her laws;

Therefore, we have nothing to fear from an eclipse of the sun.

This is what logicians call *arguing from the position of the antecedent, to the position of the consequent*.—Again:

If iniquity were banished from the world, corporeal punishment would be useless;

But corporeal punishment is not useless;

Therefore, iniquity is not banished from the world.

This is called *arguing from the removal of the consequent, to the removal of the antecedent*.

A contrary process would produce false reasoning. Let us, for example, argue from the *removal* of the *antecedent* to the *removal* of the *consequent*, and we shall clearly perceive that it is erroneous.

If Dr. Halley had discovered how to find the true longitude at sea, he would have been useful to society ;

But he did not discover how to find the true longitude at sea ;

Therefore, *he was not useful to society.*

The absurdity is evident.

It will equally produce a false conclusion, to argue from the *position* of the *consequent* to the *position* of the *antecedent*, of which the reader may easily form an example.

In a *disjunctive* syllogism, the major proposition must have two or more parts disjoined from each other, and the minor must affirm the agreement or repugnancy of one or more of those parts, to the exclusion of the rest: as

King John was induced to surrender his crown to the pope, either for fear of the vengeance of heaven, through a conviction of his own error, or to escape pontifical chastisement;

O

It was neither for fear of the vengeance of heaven,
nor through a conviction of his own error ;
Therefore, it must have been to escape pontifical
chastisement.

Or,

It was to escape pontifical chastisement ;
Therefore, it was neither for fear of the vengeance
of heaven, nor through a conviction of his own
error.

In a relative syllogism, the major must
consist of two parts, the one bearing a
relation to the other : as

Where innocence is, there peace will always reside ;
Innocence inhabits the humble cottage of the
peasant ;
Therefore, peace shall there also be found.

Again :

As a drachm is to an ounce, so is an ounce to a
pound ;
Sixteen drachms make an ounce ;
Therefore, sixteen ounces make a pound.

Connexive syllogisms are of two kinds :
first, in the major proposition, two or more

objects are affirmed either to be united, or to be resident in, or to belong to, a third object. The minor then affirms where one of them is, or is not to be found; when the conclusion, respecting the remainder, will be self-evident: as

Chastity and modesty are always united;
Susanna was chaste;
Therefore, Susanna was modest.

Taste, judgment and execution must be united in
one man, to make a good painter;
Amateur had only taste and judgment;
Therefore, *Amateur* was not a good painter.

Or,

Sir Joshua Reynolds had taste, judgment and
execution;
Therefore, Sir Joshua Reynolds was a good painter.

Secondly, two or more objects are declared to be repugnant to each other in the major proposition; and the minor asserts where, or in what, one of them is

to be found ; when the conclusion respecting the other cannot be mistaken : as

Drunkenness is incompatible with temperance ;
Henry the first was temperate ;
Therefore, Henry the first could not be a
drunkard.

Westminster Hall and St. Paul's Church were not
erected by order of the same prince ;
William the second built Westminster Hall ;
Therefore, he did not build St. Paul's Church.

Examples of conjunctive syllogisms are so easily formed, and the smallest error in their truth is so very obvious, that it would be useless to exemplify any further, or even to caution the reader against mistakes in their formation.

CHAPTER VIII.OF COMPOUND, OR REDUNDANT SYLLOGISMS.

Logicians particularly distinguish four kinds of compound syllogisms, namely, the *Epichirema*, the *Dilemma*, the *Prosyllogism*, and the *Sorites*; all Greek terms.

An *Epichirema* consists of four or more propositions; the auxiliary propositions are employed in proving the major or minor, or both: as

That which excites the allurements of the vicious
is sometimes a misfortune, *for it might subject
the innocent to temptation and dishonour*;

Beauty is subject to the allurements of the vicious,
for villains are not insensible to its charms;

Therefore, beauty is sometimes a misfortune.

This form of reasoning is very good, and is frequently employed with great efficacy, but every proof which seems superfluous should be omitted. In the above example, the proof of the minor is of little use; Yet whenever the auxiliary propositions are necessarily employed to strengthen either the agreement or repugnancy of the extremes in the conclusion, they are used with admirable effect: as

Studies which regulate the conduct of the mind are of the utmost importance, *for it is the mind which directs all our actions with regard to this life, and those which will determine our fate to all eternity;* Logic is a study which regulates the conduct of the mind, *for it is wholly employed about its operations;* Therefore, logic is a study of the utmost importance.

The *Dilemma*, though few logicians notice it, is certainly of two kinds; first, and most usually, it is employed to exhibit the absurdity, or fallacy of an assertion; when employed for this purpose, it admits, as an hypothesis, in the antecedent part of

its major, the opinion about to be opposed ; in its consequent is stated all the possible suppositions upon which the hypothesis can be supported ; the minor then overturns those suppositions ; when the assertion, which has no other ground of support, must fall of course.

Suppose it be asserted, that George the first did not die on the 11th of June, 1727, it might be opposed by a *Dilemma*, thus :

If George the first did not die on the 11th of June, 1727, he must have died before or after that time ;

Now he could not have died before, because he spoke to the surgeon who bled him, on the morning of that day, nor could he have lived after that time, for George the second began to reign on the 11th of June in that year ;

Therefore, George the first must have died on the 11th of June, 1727.

Again: suppose it be asserted, that the print representing the Death of General

Wolfe is just two feet square; it might be answered thus, by a *Dilemma*:

If the print be just two feet square; it will be fitted
by a frame which is neither bigger nor less;
But the frames which fit those prints measure just
nineteen inches by twenty-four;
Therefore, the print cannot be just two feet square:

When it is used to expose an absurdity, as in the above examples, the *Dilemma* is governed by the laws of an hypothetical syllogism, but it has great force also when employed to prove a truth: as

He who privately commits a crime, must either conceal it in his own breast, or divulge it:

If he conceals it, he must suffer it to prey upon his own conscience; if he divulges it, he must suffer public shame:

Therefore, he who privately commits a crime, must suffer.

A *Prosyllogism* is a combination of two or more syllogisms; so that the conclusion

of the former shall form the major or minor of the latter: as

Whosoever wishes to excel will be industrious;

Those who are actuated by a laudable ambition wish to excel;

Therefore, those who are actuated by a laudable ambition will be industrious.

But the indolent are not actuated by a laudable ambition;

Therefore, the indolent will not be industrious.

A *Sorites* is a succession of self-evident propositions, wherein the predicate of the first becomes the subject of the second, and this might be continued to a great length, till at last the subject of the first is affirmed of the predicate of the last: as

A lofty deportment frequently creates a man many enemies;

Many enemies may injure a man's reputation, the injury of his reputation often destroys his credit, and promotes his ruin;

Therefore, a lofty deportment might promote a man's ruin,

If the propositions be really self-evident, and the connexion be strictly just, this sort of reasoning will be good, but it is frequently very sophistical, as will appear by the following humorous *Sorites*, said to be used by Themistocles, to prove that his little son, under ten years of age, governed the whole world:-

"My son," says he, "governs his mother, his
"mother me;

"I the Athenians, the Athenians the Greeks,
"Greece commands all Europe, Europe the
"whole world;

"Therefore, my son commands the whole
"world."

Here the reader will perceive, that the fallacy is concealed in the verbs *to govern*, and *command*, which are both equivocal.

As well as redundant, there is also a defective syllogism, called by logicians an *Enthymeme*, very much in use, both in conversation and in writing; it consists

of one of the premises only, and the conclusion: as

All metals are fusible;
Therefore, iron is fusible.

Here the minor [iron is a metal] is understood.

This sort of reasoning occurs very frequently; and though in the above, and in many similar instances, the part omitted cannot well be mistaken, yet in some cases it will not, perhaps, be found so easy to supply the defect, and exhibit the order of connexion, without some knowledge of syllogistical method.

Before we conclude this chapter, it may not be improper just to notice what logicians call reasoning by induction. This is a sort of argument wherein we affirm, in a number of propositions, something concerning all the particulars com-

prehended under a general name, in order to infer a general conclusion: as

Wolves, which were formerly so abundant in this island, are not to be found in England, are not to be found in Wales, nor in Scotland. Therefore, wolves are not to be found in Great Britain.

Again:

The King consented to relieve insolvent debtors, the House of Lords consented to relieve insolvent debtors, and so did the House of Commons;

Therefore, the Legislature consented to relieve insolvent debtors.

This sort of reasoning may be defective, except all the particulars be enumerated, and that is very seldom practicable; it is therefore of little use, and should always be avoided if possible.

CHAPTER IX.

OF THE TERMS AND DISTINCTIONS IN ARGUMENT AND DEMONSTRATION.

A problem is a proposition which might be either true or false, and is probable on both sides. Whether this earth on which we live, includes within it a vast spherical magnet, as supposed by some philosophers, to account for the laws of the magnet, and other *phenomena* — whether the *sensorium*, or *sensory*, commonly called the seat of the soul, be at the beginning of the *medula oblongata*, or, as Descartes maintains, in the *pineal gland*, are problems.

Problems in logic are called *dialectical*, to distinguish them from mathematical, and other problems. When a problem is solved, it becomes a *theorem*, or an acknow-

ledged truth; when a problem is stated as a question to be resolved, it is called a *thesis*, and the resolution thereof the *hypothesis*; and as soon as the question is demonstrated, there will appear three distinct parts; namely, the *thesis*, or the proposition stated to be proved; the *hypothesis*, or the several steps orderly shewing the means whereby the question is proved; and the *conclusion*, which completes the demonstration.

Logical writers make two kinds of demonstration; namely, demonstration *a priori*, wherein the *effect* is proved from the *cause*; and demonstration *a posteriori*, which proves the *cause* from the *effect*. These distinctions, however, are not strictly applicable in every case, for all determinations, when obtained by distinct intermediate steps, clearly discoverable, are called demonstrations, even though the result of experiment in natural philosophy.

Arguments also, by which is meant not only the middle term, but the whole syllogism, are ranked under the general heads, *grammatical*, *logical*, *physical*, *metaphysical*, *moral*, *mechanical*, &c. Thus, if an argument be employed to prove the truth or falsehood of a proposition, according to the rules of grammar, the argument is called *grammatical*; if according to law, it is called a *legal* argument; if according to nature, the argument is called *physical*, &c. Arguments are again divided into *artificial* and *inartificial*, *certain*, *evident*, *doubtful*, *probable*, *improbable*, *possible*, &c. and are finally distinguished by the following Latin names:

Argumentum ad verecundiam,

An address to our modesty.

Argumentum ad passiones,

An address to the passions.

Argumentum ad ignorantiam,

An address to our ignorance.

Argumentum ad iudicium,

An address to the reason, from the nature
and existence of things.

Argumentum ad hominem,

An address to a person's principles or con-
cessions.

Argumentum ad populum,

An appeal to the people.

Argumentum ab amore,

Persuasion used to engage the reason by the
affection.

Argumentum ad ignaviam,

A persuasion in favour of inactivity.

Argumentum ab invidia,

An address to render an adversary's opinion
odious.

Argumentum a tuto,

Is drawn from a consideration of its being
safer to take one side of the question
than the other, when the evidence is
equal on both sides.

CHAPTER X.

OF THE THIRD DEGREE OF HUMAN EVIDENCE.

In the first and second degrees, we appeal to our own senses, and obtain the highest certainty ; for the truth which is discovered by intuition, is immediately irresistible, and that which we obtain by intermediate means and experience, will be no less certain, if our deductions and experiments be performed with accuracy ; but every thing which occurred before our time, in our infancy, and most of the information we obtain after we arrive at a state of maturity, and are capable of judging for ourselves, must be taken on the testimony of others, however fallible such

evidence may be. It is true, we are frequently liable to be deceived by this sort of evidence, yet, in general, it is nearly as satisfactory as any information we obtain.

There are many who were never out of this island, and of course can have no other evidence of the existence of such countries as France, Spain, Germany, &c. than the testimony of others; yet they have no reason to doubt the truth of the existence of such places. We must rely on it for all our historical information; and, in short, the majority of the circumstances of every kind which come to our knowledge have no other ground of support, yet they merit our entire credence. In all cases of importance, however, where it is in our power to judge for ourselves, we should never trust to this evidence. Logicians have laid down many learned rules to direct the judgment in doubtful cases of this kind; but as it is presumed, that such as need their assistance

have not sufficient skill to apply them, and that those who are endowed with abilities equal to that purpose, require no such aid to direct their determination, we shall conclude this chapter.

CHAPTER XI.

OF SOPHISMS.

As there are some false arguments which may seem to carry with them the force of truth, to such as have not sufficient discrimination to detect their fallacy, they have been ranged under several Latin names, the four principal of which we shall just notice, rather to gratify curiosity, than to afford any useful instruction.

The first is called *ignoratio elenchi*, the former a Latin, and the latter a Greek word, meaning *ignorance of the question*. It signifies that sort of fallacy, wherein a plausible conclusion, to deceive the ignorant, is drawn from premises which amuse,

and sometimes captivate the mind, but are by no means calculated to prove any thing respecting the question: as if a gentleman were wanted to fill an office, and to discharge the duties of which, nothing was wanting but good abilities and honesty; an orator, in order to persuade the multitude in favour of his friend, might use a sophism of this kind, as follows: "*Mr. Crassus is a gentleman of independent fortune; he can boast of the most noble rank of ancestry; and yet he is not proud. He keeps a good house, and makes it the mansion of hospitality; and above all, gentlemen, he is your own townsman, he was born in the same parish; therefore, Mr. Crassus is a proper object of your choice.*" One, however, endowed with a very small share of understanding, will perceive, that all which is enquired after are good abilities and honesty, to the proof of which the argument is nowise applicable. An ingenious reader, unacquainted with the ways of men, may think it impossible that rational beings could be

so grossly imposed upon; but those who will give themselves the trouble of analyzing some of the long discourses delivered before genteel audiences, and view them divested of the multitude of adjuncts which bewilder the mind, keeping only in view the simple thesis and hypothesis, will frequently discover fallacies as gross, perhaps, as the one above instanced.

To this head might be referred, that contrivance of a disputant who, on finding his adversary likely to establish his point, shifts from the subject in debate to some similar proposition, which he can determine on the ground he has taken, and then, presuming that his opponent has forgotten, or mistaken the point in dispute, with a degree of triumph, pretends he has fairly overturned his hypothesis.

The second sophism is called *petitio principii*, or, in plain English, *a begging of the question*. This is a fallacy wherein a

proposition is pretended to be proved by a repetition of the same ideas in other words, or by some other proposition equally disputable with the former: as *it is universally credited*, because *every body believes it*: which is but repeating the same proposition in other words: or, *his Majesty's ministers deserve credit*, because *they have merited it*. This is what the vulgar, in some parts of England, call a woman's reason, *it is so*, because *it is so*.

The third is called *non causa pro causa*, or *not one cause for another*. By this is meant, that fallacy which attributes an effect to a false cause. This is an error to which all mankind are subject, from the narrowness of the human capacity. The ancients attributed the damage done by lightning to a hard substance, which they called a thunder-bolt, because they were unacquainted with the nature of the electric fluid, and supposed that the small substances, such as a part of a brick, or a stone,

which were frequently found vitrified, where the electric matter struck, really came from the clouds. Many of the vulgar, to this day, consider the noise made by that little animal called the *pediculus*, or death-watch, to indicate the approaching decease of some one of the family, though it be well known to arise from a voluntary effort of that insect, at a certain season of the year.

This sophism has also been frequently employed to mislead the ignorant; as when a series of calamities has befallen a nation, which no human foresight could have prevented, the designing, to excite popular odium, have attributed it to the sins, or machinations, of a body of men, or an individual.

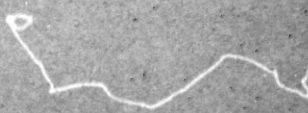
The fourth is called *fallacia accidentis*, or *the deceit of accident*, and is the name of that erroneous argument, by which men are led to form a determination concerning

a thing or circumstance, not on that which is essential to it, but on some accident attending it: as, if a man, having casually injured his health by the use of the cold bath, were to decry it, therefore, as dangerous on all occasions.

It frequently happens, that men of the most brilliant talents, from inattention, a depression of the animal spirits, or some other fortuitous circumstance, may write, or say, a foolish thing; an argument to prove such a person to be a weak or silly man, grounded on that accident, would be a fallacy of this kind.

There are many other sophisms formally treated of, but they arise, principally, from the equivocal meaning of words, and are not worth notice. False induction, however, that is, when we enumerate the particulars, and then conclude generally, is as great a source of error as any that has been mentioned; for those particulars are

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to a general idea, what all the parts are to a mathematical whole; and when every particular is not expressed, or implied in the enumeration, the general conclusion cannot be warranted just: as, if it be asserted, that *a young gentleman, of good natural abilities, had been ten years at the first grammar school in the kingdom, as long at the University, and had been heard to repeat some passages of Homer and Virgil with accuracy and elegance*; yet then, we cannot safely conclude that he is a good classical scholar, for all these particulars do not amount to what is comprehended in the general idea; as there are many who have enjoyed all these advantages, and are able to repeat, with grace, many select passages, yet, for want of industry, are very deficient in point of classical knowledge.

CHAPTER XII.OF METHOD.

As the former parts of logic acquaint us with the powers of the mind, inform us how to marshal the objects of our knowledge, and instruct us in rendering them subservient to an orderly, familiar, and comprehensive discipline, under the direction of the will, method is intended to shew us how discoveries are made, and to teach us the best means of communicating them to others.

Method is divided into *analytic*, *synthetic*, and *arbitrary*. In the analytic method, which is also called the method of *resolution*, we begin with a composition, and reduce it gradually into its first prin-

ciples, as a chymist resolves a natural substance into water, earth, salt, sulphur, and mercury, and so acquaints himself, as far as he is able, with the first principles of its nature. This is also the method which should be taken to define a complex term, or a combination of ideas; and, if it were possible to reduce all the parts of the composition into simple perceptions of sensation and reflection, the analysis would be complete: but it is with the logician, as with the chymist, some of the component parts will, either through their subtilty, escape in the process, or resist the skill of the enquirer.

The synthetic method, is that wherein we begin with the simple parts, and put them together in a natural order, till we have completed the composition. Thus, it appears, that if we could exactly trace a combination into its simple principles, by analysis, and let nothing escape, then, having noticed the order in which they were combined, we could, by the

synthetic method, join the parts together again, and so make up the combination; but neither of these methods, however pleasing in theory, are, either in chymistry or logic, easily reducible to practice. These two methods are, also, by some, called *natural methods*, because the thing which follows depends, in a great measure, on that which goes before;* but this must be a mistake, for nature always performs her operations by the synthetic method. Thus she wonderfully produces animals, vegetables, and all the admirable compounds in the fossil kingdom, by means far beyond the reach of mortal wisdom; and, upon a strict enquiry, it will be found, that the analytic is a method directly contrary to the order of nature.

Logical writers say, that the analytic method is employed in discoveries of the mind,

* Vide Watts's Logic, page 340.

that by it we are able to trace out the cause from the effect, and frequently to discover the effect from the cause; but that sciences are taught by the synthetic method; as in the mathematics, the mind is first informed of simple units, and from thence gradually led on to an acquaintance with the highest combinations, and into a knowledge of the most distant relations.

Both these methods are doubtless admirable assistants to the memory, for as things occur in a synthetic order, and have a dependence upon one another, so when we come to trace them backwards by the analytic method, the dependence is perceived, and our procedure, facilitated. Though these two methods serve us as universal guides, yet, in tracing them nicely, the best writers find it very difficult to preserve a clear distinction between them, and they are scarcely ever practised without some deviation.

“ *Arbitrary method,*” says Dr. Watts,
“ leaves the order of nature, and accom-
“ modates itself to many purposes; such
“ as, to treasure up things, and retain them
“ in memory; to harangue and persuade
“ mankind to any practice in the religious
“ or the civil life; or to delight, amuse, or
“ entertain the mind.”

“ Those writers and speakers whose
“ chief business is to amuse or delight, to
“ allure, terrify, or persuade mankind, do
“ not confine themselves to any *natural*
“ *order*, but in a *cryptical*, or *hidden method*,
“ adapt every thing to their designed ends.
“ Sometimes they *omit* those things which
“ might injure their design, or grow
“ tedious to their hearers, though they
“ seem to have a necessary relation to the
“ point in hand: sometimes they *add* those
“ things which have no great reference to
“ the subject, but are suited to allure or
“ refresh the mind and the ear. They
“ *dilate* sometimes, and flourish long upon

“ little incidents, and they skip over, and
“ but lightly touch the drier parts of their
“ theme. They *place the first things last,*
“ and the *last things first,* with wondrous
“ art; and yet so manage it as to conceal
“ their artifice, and lead the senses and
“ passions of their hearers into a pleasing
“ and powerful captivity.”—A beautiful
description of the effects which the native
ingenuity of the mind might produce, by
shaking off the trammels of general rules.

Thus, it appears, that the method which
naturally suggests itself to an ingenious
mind, peculiar to the identical object in
view, is the best to be adopted; for so
various are the subjects about which
method is employed, and so difficult is it
to contrive general rules for particular
cases, that they frequently embarrass those
who attempt to apply them, and often
destroy the spirit of a performance.

It is, indeed, certain, that in matters of
enquiry, the mind, without regarding any

rules whatever, pursues, to obtain its information, the best method which presents itself to its view, and, perhaps, never twice proceeds in the same way.

The reason why the mind generally employs something like the analytic method, is, because the whole composition is too unwieldy for its management, and therefore it endeavours to obtain the satisfaction required, by examining the parts separately.

For this same reason, the synthetic method is adopted, to communicate complicated systems, beginning with simple objects, and gradually exhibiting to the mind of the learner, in the order of nature, all the parts of the composition; and in such cases, it is, perhaps, possible, strictly to adhere to the synthetic method. But is this exactly a contrary picture of the means by which the discovery unfolded itself to him who explored the system? Surely

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every one who has attempted to invent, in the smallest degree, will answer No; for complicated subjects unfold themselves to the mind in so very irregular a manner, that were it possible to detail them in an order exactly the reverse of that in which they made their way into the mind of the discoverer, they would, perhaps, be scarcely intelligible. Some writers have treated of method at great length, and have built up very plausible theories;* but upon the whole, the analytic and synthetic methods may be considered in logic, what patterns of rectitude are in religion and ethics, i. e. standards of perfection which we should take as guides to conduct our-



* Mr. Duncan, who, in his *Elements of Logic*, speaks so familiarly of the composition and resolution of complex ideas, excuses himself from exemplifying, by alledging, that the shortness of his work will not admit of *entering into particular descriptions*, yet he has devoted *ninety four* crowded pages to the *important subject of method*.

selves by as nearly as possible, consistent with the safety of our life and health; but we should not pine for want, to maintain a severity of moral rectitude, incompatible with an occupation from which we may legally obtain support; nor perish, in attempting to adopt a degree of pious purity which may be inconsistent with the unto-wardness of our fallen state; neither should we so shackle ourselves with the analytic method, as to refuse useful things which may present themselves to the mind, because they do not make their appearance according to rule; nor, in the communication of our thoughts, should we tread with such exact formality in the steps of the synthetic method, as to disgust our readers, or hearers, with the stiff formality of methodical arrangement.

It is the introduction of a multiplicity of rules, invented, as it were, to teach men to philosophize mechanically, that has brought so many branches of learning into

ridicule, and it was this absurdity which gave occasion for that admirable piece of humour, the Philosophers of the Floating Island, in Swift's Gulliver.



FINIS.

